The $330 billion opportunity—How US households stand to benefit from AI assistive support

July 2026

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Executive summary

AI assistive support unlocks up to $330 billion of socio-economic value in US households

Unpaid household work, including planning, coordinating, remembering, troubleshooting, and providing care, represents a significant and essential share of US household activity.[1] For over 130 million US households[2] this work sustains day-to-day life, with caregivers managing complex webs of medical appointments, educational milestones, aging parent care, and family logistics. However, much of this work is not captured in traditional economic measures because it is unpaid and distributed across informal, everyday tasks rather than paid transactions. In practice, households experience it as the persistent burden of 'care and life management,' making sense of fragmented information, making repeated decisions and trade-offs, navigating services and institutions, and coordination-intensive follow-through—work that is especially concentrated among caregivers.

Advances in artificial intelligence (AI) create an opportunity to reduce this burden at scale. AI can help households interpret information, prioritize next steps, coordinate across people and tools, enhance their support and care, and prevent missed steps that cascade in disruption. The result is greater autonomy and stability: more control over how time and attention are spent, fewer breakdowns in everyday routines, and a greater ability to be present for children, elders, partners, pets and extended family.

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[1] American time use survey (BLS) 2024

[2] https://www.census.gov/quickfacts/fact/table/US/HSD410224

For the purpose of this analysis, AI refers to widely available, general purpose and specialized systems that can generate outputs such as summaries, recommendations, drafts, schedules, and checklists by interpreting user-provided prompts and information. The analysis further focuses on AI assistive support for household life, tools that help households plan, coordinate, and follow through on unpaid work.

Importantly, this analysis does not assume that AI replaces caregivers' judgement or relationships. Instead, credible household AI is best positioned as decision support that keeps decision authority with the caregiver, supports review and correction of outputs, uses clear permissions and consent, and escalates exceptions rather than always acting autonomously.

The analysis is grounded in a set of practical household use cases that reflect what is feasible with AI capabilities available today (see Appendix Section **5.2** for use case details). These use cases span six core household functions—chores, social coordination, shopping and errands, household management, child, pet, dependent care, and elder care—and demonstrate how AI can reduce friction in everyday life. From AI-enabled wearable monitors that provide alerts to caregivers to AI assistants helping coach a parent through math tutoring when a tutor is unavailable, or even AI agents proposing a weekly meal plan and shopping list based on family preferences, schedules, dietary needs, and what's on hand, these assistive supports can deliver significant value for households.

Value has been evaluated using a bottom-up approach that estimates time reallocation and avoided costs for each caregiver persona, scales it to the US population, and assumes conservative adoption rates and realization factors (see Appendix Section **5.5** for details of analysis). This analysis estimates that AI assistive support in unpaid household work can unlock up to $330B[3] in annual socio-economic value in US households, driven primarily by:

- 18–42% reduction in time spent on supported household activities (directional range)
- Improved reliability in household routines that reduces recovery work, prevents avoidable breakdowns, and lowers the persistent 'keeping track' burden[4]

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[3] Quantitative value estimates represent household time savings and cost avoidance, not a direct contribution to GDP. These gains may support productivity and economic activity over time, but they are not additive to GDP on a one-to-one basis

[4] Estimated values reflect the AI use cases in scope for this analysis and do not represent the full universe of AI assistive support

The value of AI assistive support was assessed across two dimensions: measurable time-and-cost effects and human-impact effects (cognitive load and wellbeing).

Exhibit 1: Value dimensions of AI assistive support

Quantitative value (measurable)		Qualitative value (human impact)	
Time savings: Less time spent on end-to-end household work, including researching and comparing options, making sense of fragmented information, troubleshooting day-to-day problems, and managing routine tasks and follow-through	**Cost reduction:** Lower costs by preventing missed steps and escalating issues early. This leads to lower late fees or missed payments, such as a late library fee or a missing daycare payment	**Cognitive and psychological load reduction:** Less need to keep track of everything in your head. When AI pulls information together and flags what needs attention, caregivers spend less effort checking, remembering, and chasing follow-ups	**Wellbeing outcome level and quality:** Improved consistency and quality of outcomes, reducing disruptions that cascade into stress and extra work, thereby supporting autonomy and reducing avoidable costs tied to illness

These value dimensions are additive: quantitative time and cost effects capture measurable savings, while qualitative cognitive load and wellbeing effects capture the everyday relief households describe. As one caregiver put it, "The biggest value is not only saving time, but also not having to think about it all the time" (see Appendix Section **5.6** for caregiver insights).

A bottom-up approach to scaling value across the US population

This report is designed to be grounded in current capabilities, built from the household up, and explicit about adoption and realization constraints. In practice, this means value is estimated at the household level first, then scaled to the US population using conservative adoption and realization assumptions.

1. **Bottom-up from household use cases.** A set of household AI use cases are defined at the level of real activities and the support required to complete them (see Appendix Section **5.2** for use case details). Value per-household is estimated based on time reallocation and cost avoidance under defined assumptions.

2. **Segmented by caregiver personas.** Five caregiver household personas were applied to reflect that caregiving intensity, dependency load, and failure costs differ across household types:

    - Two-adult childcare household
    - Two-adult elder care household
    - Two-adult sandwich household (children + elders)
    - Solo caregiver household
    - Non-caregiver household

    These personas provide a consistent structure for scaling use case impacts to populations and for explaining why value concentrates where responsibility is highest (see Appendix Section **5.3** for persona details). Cross-cutting modifiers such as income, employment intensity, rural/urban context, disability status are treated as modifiers that shape applicability and constraints rather than standalone personas.

3. **Scaled to population with adoption assumptions and conservative realization.** Per-household values are scaled using persona populations and adoption assumptions, and adjusted by cross-cutting modifiers where they affect applicability. To avoid overstating economic effects, a realization factor was applied to reflect that not all time saved converts into economically productive output.

Ultimately, the quantitative estimates reflect an economic equivalent value to households, not a direct, one-for-one increase in GDP. They represent real household benefits including time returned, avoided costs, and improved reliability, with broader economic impacts occurring indirectly through productivity, participation, and wellbeing. As shown in Exhibit 9, total quantitative value is estimated by combining economic value per adopting household with the number of adopting households.

Methodology at a glance—from unpaid household activities to up to $330B of socio-economic value

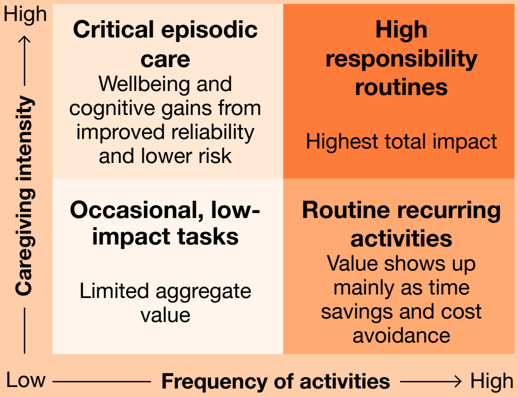
The steps below summarize how the bottom-up approach scales the value of six core household functions to population-level socio-economic impact:

- **Defined six core household functions** to reflect how households organize unpaid work across chores, social coordination, shopping and errands, household management, child, pet, dependent care and elder care (see Appendix Section **5.1** for details).
- **Specified 20 representative household use cases** that reflect feasible AI assistive support today (see Appendix Section **5.2** for use case details).
- **Defined five caregiver personas** that incorporate responsibility intensity and life stage differences to reflect how value and adoption vary across households (see Appendix Section **5.3** for persona details).
- **Built the socio-economic value framework** linking use cases to household outcomes.
- **Mapped AI support to the value dimensions** (time, cost, cognitive load, wellbeing) to keep outcomes traceable and measurement modular (see **Exhibit 1**).
- **Scaled per-household impacts to the US population** using Census-grounded persona populations, adoption assumptions, and cross-cutting modifiers where they affect applicability (see Appendix Section **5.5**).
- **Validated feasibility and value drivers through interviews** across diverse demographics (e.g. rural/urban, income, age, marital status, AI usage) (see Appendix Section **5.6**).

AI value in action—Turning caregiving burden into socio-economic gains

Value across household activities tends to cluster into four task paradigms, shaped by how frequently responsibilities recur and how care-intensive and consequence-heavy they are. These paradigms create predictable patterns in where AI assistive support value concentrates, helping explain why AI delivers greater impact in some household contexts than others.

The Four Task Paradigms



Critical episodic care Wellbeing and cognitive gains from improved reliability and lower risk	**High responsibility routines** Highest total impact
Occasional, low-impact tasks Limited aggregate value	**Routine recurring activities** Value shows up mainly as time savings and cost avoidance

Critical episodic care

Low-frequency but high-stakes moments where reliability and missed-step prevention from the use of AI drive the biggest wellbeing and mental-load gains. Examples: health concern triage through symptoms and non PII photos; urgent repairs; safety actions.

High responsibility routines

High-frequency, care-intensive routines where AI delivers the highest total impact through reduced time spent, fewer dropped handoffs, stabilized routines, and avoided downstream disruptions across the household.

Routine recurring activities

High-frequency everyday routines where AI delivers the largest time and cost value by simplifying repeated decisions, interpreting information, and reducing ongoing cognitive effort. Examples: meal planning; grocery shopping; customized workout plan based on sleep patterns.

Occasional low-impact tasks

Infrequent, low-stakes tasks where AI improves convenience, but overall value is limited by low recurrence and low consequence. Examples: one-time purchasing comparisons; plain-language interpretation of benefits or insurance documents or analysis of monthly expenditures.

Value concentrates where tasks are repetitive, recurring, and coordination-heavy: The largest time-and-cost value concentrates where three factors coincide: activities repeat daily or weekly, the steps are repeatable enough for AI to automate parts of the workflow, and the routine is common across households. In these settings, small reductions in effort compound across many repetitions, which is why high-frequency work like household chores and social coordination drive the largest share of estimated total value.

Value increases as caregiving responsibilities expand to a higher number of dependents: With an increase in the number of dependents, caregivers face more parallel responsibilities and more points where information, decisions, and follow-through stay aligned across people. With each added dependent, the workload becomes denser and more interdependent, and the cost of a missed step rises because changes in one area can cascade into disruption and recovery work. This is most visible in sandwich households (~$6,285 per year), where caregivers support children and older adults at the same time. Overlapping care needs create a high concentration of recurring tasks with limited margin for error, and AI assistive support creates value by turning complex inputs into clear actions, reducing disruption, and stabilizing routines.

Value deepens with wellbeing gains where task criticality and care intensity are high: Highest wellbeing gains from AI assistive support concentrate where responsibility is continuous and the consequences of failure are meaningful. These activities may not be as frequent as routine household work, but they demand sustained attention and carry emotional weight because lapses can disrupt health, safety, or financial stability. In these contexts, wellbeing gains come from reducing fragility in daily life rather than time efficiency. This is visible in elder care households, where aggregate time and cost savings may appear lower because elder care affects fewer households and many tasks are episodic (e.g. medication refills, follow-up appointments, insurance renewals). However, qualitative wellbeing impact is high because stakes are elevated and the need for constant oversight persists.

Value peaks where all three factors converge into high caregiving intensity and high frequency: Highest socio-economic value concentrates where three factors coincide: a higher number of dependents, a higher volume of repeating activities, and higher care intensity. In these households, small time and cost effects compound across frequent routines, and reliability gains prevent avoidable breakdowns that would otherwise create extra follow-ups and disruption. This is visible in sandwich households, where quantitative value is highest at ~$6,285 per household per year and aggregates to ~$149B at scale. Alongside this baseline, qualitative gains in wellbeing and cognition are additive, showing up as reduced ‘keeping track’ burden, fewer stressful escalations, and more stable day-to-day outcomes.

AI adoption enablers that multiply household value

The potential for AI to deliver value to caregivers is aided by trust and clarity of roles between AI assistive support and the people who use it. As caregivers experience reliable outcomes in everyday tasks and AI becomes more integrated across the tools they already use, usage is expected to expand from predominantly reactive, user-initiated assistive support toward more proactive follow-through over time. The analysis in this report assumes a 40% level of adoption,[5] and the adoption enablers outlined here shape how that value can scale:

- **Clear, practical wins build early trust:** When AI helps with everyday pain points like synthesizing ingredient labels and recipes to flag potential allergens for a child, or drafting and organizing follow-ups, caregivers quickly see value and become more willing to rely on it more broadly.
- **Reliability in recurring tasks compounds value over time:** Consistent support across everyday routines, including information synthesis, decision support, and exception flags, helps build trust, enabling caregivers to use AI more frequently and across a wider set of responsibilities.
- **Integration with existing tools lowers adoption friction:** When AI works inside tools caregivers already use such as calendars, messaging, school portals, and health systems, it reduces effort to adopt, allowing value to scale without forcing new behaviors.

Looking ahead, AI capabilities for household activities are expected to evolve from assistive support to more autonomous execution. As integration across everyday tools improves and delegation becomes more natural, adoption can broaden and the benefits outlined here can compound over time. These findings provide a baseline and a structured foundation for future updates as capabilities, interoperability, and household norms continue to mature.

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[5] Adoption modeled at 40% based on a five-year outlook as of 2031 (11% today, ~30% annual growth)
https://www.pewresearch.org/internet/2025/04/03/artificial-intelligence-in-daily-life-views-and-experiences/
https://www.thebusinessresearchcompany.com/report/artificial-intelligence-ai-in-home-automation-global-market-report

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AI delivers measurable socio-economic benefit for US households

Use cases are defined at the level of household activities and the practical support required to complete them, then valued using a bottom-up approach to estimate value per adopting person at scale. Interview input is used to validate real-world relevance and clarify adoption conditions for assistive support. For example, interviews were used to test whether medical note synthesis, summarizing visit notes, extracting key instructions, and surfacing follow ups would reduce household burden in practice, and to identify the conditions required for adoption such as accuracy, privacy, and the ability to review and correct outputs.

Household value is assessed across measurable outcomes and human-impact effects, and the two are interdependent rather than separate. When reliability improves, households spend less time on recovery work, additional work, and avoidable breakdowns, which strengthens measured time and cost effects. When cognitive load is reduced, routines are easier to sustain, attention is freed for higher-priority needs, and benefits compound over time. In household settings, this interaction is often where a large share of socio-economic value sits: fewer steps fall through when conditions shift, and fewer disruptions cascade into additional time and resource costs.

An AI medication management and monitoring assistant guides an older adult through daily routines, asks for confirmation when medications are taken, provides safety prompts, and alerts a family caregiver if a dose or critical step is missed—supporting independent living while giving the family confidence that preventable health risks are less likely.

Use case for AI assistive support in household life—Medication management

In care routines, reliability and time savings go together. Reliability strengthens measured value. When care routines run as planned, households see less monitoring burden and less recovery work after a miss.

These interactions also help explain why value clusters. Impacts concentrate where frequency allows gains to compound, where care intensity increases judgement points across dependents, and where failure cost impacts reliability and triggers cascading disruption. The next section applies task paradigms and themes to show how these drivers shape where socio-economic value concentrates across household activities.

AI value in action—Turning caregiving burden into socio-economic gains

AI use cases (see Appendix Section **5.2**) tend to produce value clustering into four task paradigms. Each paradigm groups activities by three features that shape outcomes: how often the activity repeats, how care-heavy it is, and how disruptive it is when a step is missed. Organizing the use cases this way makes it easier to see why some paradigms tend to deliver more time and cost value, while others tend to deliver more reliability and reduced mental load.

Use cases (non-exhaustive) for AI assistive support in household life across the four task paradigms

Critical episodic care	High responsibility routines	Routine recurring activities	Occasional low-impact tasks
AI guides immediate next steps when an older adult shows signs of a stroke, helping the caregiver gather the right information and organize follow-up care	AI monitors school communications, extracts requirements into calendars/reminders, updates overlapping schedules across multiple dependents when changes occur so handoffs don't fall through	AI interprets groceries on hand, analyzes household preferences and nutritional goals or time constraints, avoiding decision fatigue. Over time, this leads to smoother evenings and fewer last-minute fallbacks, reinforcing stable routines while lowering both time spent and costs from dining out	AI gathers availability/preferences for an extended-family event, proposes a plan, and manages neutral follow-ups and reminders
Reliability and wellbeing (high failure cost)	Highest total value (time/cost + reliability)	Time and cost (compounding from frequency)	Convenience (limited scale)

AI value concentration across task paradigms

When the use cases are evaluated against the value dimensions, similar value profiles cluster within the same paradigms. The themes below explain why these patterns repeat and why value concentrates more in some paradigms than others.

Theme 1: Value concentrates where tasks are repetitive, recurring, and coordination-heavy

Household chores and social coordination generate the largest share of value because they happen often—consuming on average about four hours of caregiver time per day. When an activity repeats daily or weekly, even small reductions in effort add up across the year and across households, driving hours of gains in total time and billions of dollars in cost value. Even where activities cannot be automated, the ongoing overhead, from interpreting the inputs that go into a decision to tracking follow-through and handling changes, can be reduced. For example, value accumulates in activities like meal planning and grocery shopping, where AI can suggest meals based on preferences and what is on hand, generate a shopping list so a grocery visit takes fewer decisions and fewer extra runs, and help track weekly spend by comparing prices and flagging deals or substitutions that fit a household budget.

Exhibit 2: Time value ($B) is higher in household functions with repetitive tasks

Household function	**Total quantitative value ($B)**[6]	**% Time reduction**[7]	**Drivers**
Household chores	~$162B	~30%	High recurrence + broad reach = large total value
Social coordination	~$74B	~28%	High recurrence + broad reach = large total value
Child, pet, and dependent care	~$44B	~18%	High recurrence + broad reach = large total value
Household management	~$20B	~26%	Lower time base + moderate repeatability = lower total value
Shopping and errands	~$19B	~42%	High repeatability + lower time base = lower total value
Elder care	~$8B	~24%	High consequence + narrower reach = lower total value

This pattern shows up in the modeled time-reduction results as well. Activities with high recurrence and broad reach generate the largest total values because small savings compound across many households and many repetitions. Where reach is narrower, time base is smaller, or steps are less repeatable, total value is constrained even if one driver is favorable. All listed household functions show measurable time reallocation potential under the defined assumptions. The largest percentage reductions occur where steps are most repeatable; the largest total values occur where recurrence and reach are greatest.

An AI assistant uses wearable data to suggest a realistic weekly workout plan, adjusts it when sleep or recovery is low, and keeps the plan simple to follow day to day.

Use case for AI assistive support in household life—Wellness planning

In high-frequency household routines, small time savings add up. When AI reduces the repeated ‘reset’ work of planning and sticking to routines, households spend less time deciding, re-planning, and starting over—freeing time for other daily chores.

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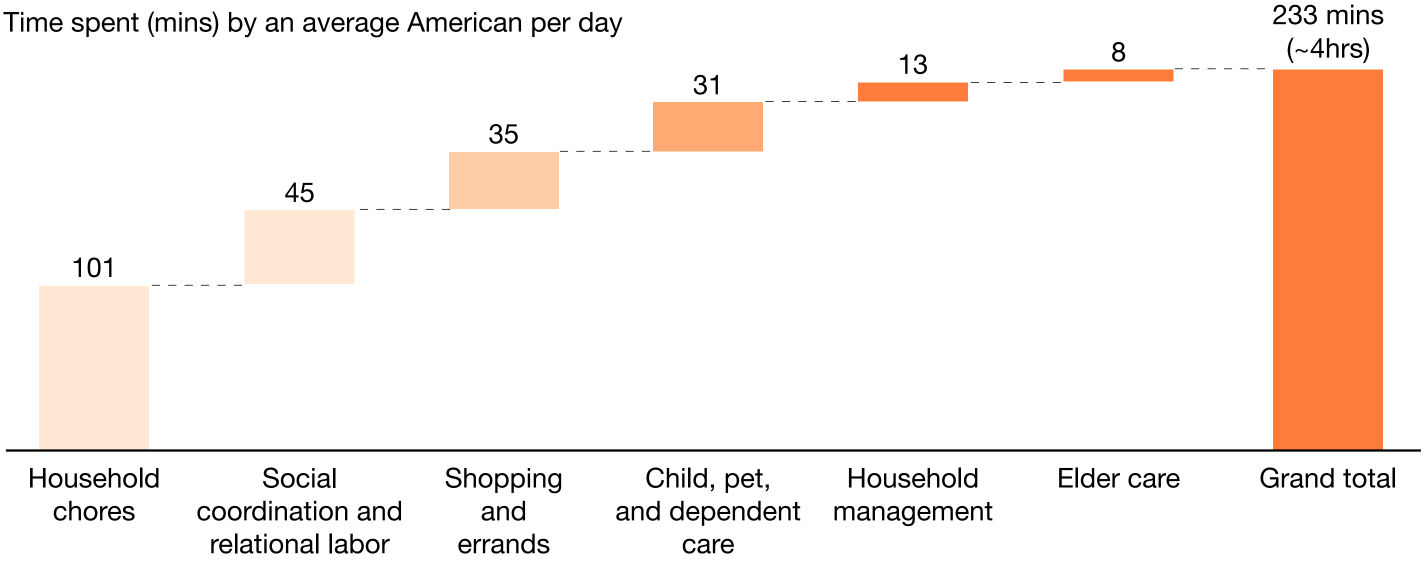
[6] Total quantitative value reflects the maximum potential opportunity value

[7] https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0281282

Unpaid household activities are grouped into a set of household functions

Household functions provide a consistent framework for identifying AI use cases and comparing impact across populations. Together, they span physical, cognitive, and relational tasks that sustain day-to-day functioning and long-term wellbeing (see Appendix Section **5.1**).

Exhibit 3: Time spent (mins) on core household functions by an average American per day[8]



Source: Bureau of Labor Statistics' time-use data[9] and household economics research[10]

- **Household chores:** Preparing meals; cleaning living spaces; doing laundry; maintaining home and vehicles; handling minor repairs
- **Social coordination:** Maintaining family communication; organizing social obligations and gatherings; advising on mediating conflicts; sustaining support networks
- **Shopping and errands:** Purchasing groceries and household supplies; buying clothing and school items; picking up prescriptions; handling in-person banking or payments
- **Child, pet, and dependent care:** Feeding, bathing, and supervising children/pets/dependents; supporting learning and homework; scheduling childcare and transport; monitoring routines and activities
- **Household management:** Budgeting and paying bills; managing household schedules; arranging appointments and services; completing school, health, and administrative forms
- **Elder care:** Assisting with daily living needs; managing medications and appointments; coordinating caregivers and family support; monitoring safety and wellbeing

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[8] https://www.bls.gov/tus/tables/a1-2024.pdf

[9] https://www.bls.gov/tus/tables/a1-2024.pdf

[10] https://ilostat.ilo.org/topics/sdg/, https://www.apec.org/docs/default-source/publications/2022/3/unpaid-care-anddomestic-work-counting-the-costs/222_psu_unpaid-care-and-domestic-work.pdf, Grossman, M. (1972). On the Concept of Health Capital https://www.jstor.org/stable/1830580, Becker (1965), A Theory of the Allocation of Time: https://www.jstor.org/stable/2719642

AI's assistive use cases are spread across household functions

Unpaid household work is a large, everyday operating system. The opportunity for AI is less about replacing tasks and more about reducing the effort required to interpret information, choose next steps, and respond early when conditions change (described in detail in Appendix Section **5.2**).

Exhibit 4: AI assistive use cases across household functions based on current AI capability[11]

Household function	Information synthesis	Planning and scheduling	Follow-through and reminders	Decision support	Monitoring and escalation
Child, pet, and dependent care	Learning support and guidance	Routine planning and coordination	Routine reminders and checklists	Supervision and engagement support	Safety prompts and caregiver alerts
Elder care	Medical information synthesis and care planning	Appointment and care coordination	Medication routines and reminders	Health triage and care navigation	Missed-step detection and escalation
Household chores	Troubleshooting and how-to guidance	Task planning and workload balancing	Recurring task reminders and handoffs	Prioritization of maintenance tasks	Issue detection and service escalation
Shopping and errands	Product and price comparison summaries	Shopping list and restock planning	Order, pickup, and refill reminders	Purchase tradeoff recommendations	Stock, price, and deadline alerts
Household management	Forms, policies, and benefits explained	Calendar and deadline management	Bills, paperwork, and renewal reminders	Budgeting and financial decision support	Deadline risk flags and exception alerts
Social coordination	Thread summarization and context capture	Event and gathering planning	RSVP collection and follow-ups	Message drafting and neutral rephrasing	Conflict signals and de-escalation prompts

Note: The AI use cases identified in Appendix Section **5.2** are non-exhaustive and reflect how households may use AI today

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[11] Includes Agentic AI capabilities

Theme 2: Value increases with a higher number of dependents

Value increases as the number of dependents rises because caregivers take on more simultaneous responsibilities and spend more time interpreting information, making decisions, and following through across multiple needs. Each added dependent increases the volume of routine tasks, but also the mental load of keeping priorities straight and catching issues early. As a result, benefits show up in multiple ways at once: time saved on repeated work, fewer out-of-pocket costs from preventable misses, lower ‘keeping track’ burden, and greater day-to-day stability when routines don’t break.

This pattern is reflected in Exhibit **5**, where sandwich households show the highest aggregate value and have the highest number of dependents. Value is higher in sandwich households because caregivers are coordinating two different care systems at once—child-related logistics (school notices, forms, deadlines, routines) alongside elder-related logistics (appointments, instructions, medication refills, follow-ups). That overlap creates more points where information should be translated into clear actions and tracked to completion, and where breakdowns trigger cascades (rescheduling, repeated calls, urgent catch-up work). AI assistive support therefore delivers more value across use cases. For example, if an older adult’s medication change is misunderstood and a dose is missed for a few days, symptoms can worsen and lead to an urgent clinic visit or ER trip. The caregiver then has to pull a child out of school, miss work, pay for last-minute childcare or transport, and absorb the emotional stress of managing a health crisis while trying to keep the child’s routine stable.

Exhibit 5: Aggregate economic value by household personas ($B)[12]

Household function[13]	Two-adult childcare household	Two-adult elder care household	Sandwich adult caregivers	Solo caregiver household	Non-caregiver household
Child, pet, and dependent care	$18B	$3B	$28B	$5B	$2B
Elder care	-	$6B	$7B	$1B	-
Household chores	$63B	$27B	$72B	$12B	$15B
Shopping and errands	$11B	$13B	$12B	$2B	$7B
Household management	$5B	$6B	$9B	$1B	$5B
Social coordination	$19B	$23B	$21B	$3B	$13B
Totals	$116B	$79B	$149B	$24B	$44B

■ $80B+ ■ $80B–$60B ■ $60B–$40B ■ $40B–$20B ■ $20B–$0B

Note: Aggregate value is not a direct representation of per-household value. Smaller segments with high burden can show lower totals simply because fewer households are in that persona. Qualitative impacts are assessed separately as additive human impact effects

Since aggregate totals are influenced by the population size of each persona, Exhibit 6 presents per-household value to show value intensity independent of population size. Per-household estimates apply a realization factor so that only a share of time saved is treated as economically realized, and that share varies by persona based on caregiving intensity and time scarcity. As caregiving demands increase and leisure time decreases, the same minutes saved translate into higher realized value than a persona where the responsibility is shared or leisure time is higher.

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[12] Total quantitative value reflects the maximum potential opportunity value

[13] Note: Aggregate value is not a measure of 'need' per-household. Smaller segments with high burden can show lower totals simply because fewer households are in that persona. Qualitative impacts are assessed separately as additive human impact effects

Exhibit 6: Per-household economic value by caregiver personas ($)[14 15 16]

Household function	Two-adult childcare household	Two-adult elder care household	Sandwich household	Solo caregiver household	Non-caregiver household
Child, pet, and dependent care	$689	$100	$1,195	$597	$53
Elder care	$0	$199	$283	$141	$0
Household chores	$2,440	$839	$3,027	$1,513	$333
Shopping and errands	$410	$410	$509	$255	$163
Household management	$210	$184	$375	$187	$120
Social coordination	$723	$723	$897	$448	$287
Value per-household	$4,472	$2,454	$6,285	$3,143	$955

■ $1,000+ ■ $750–$1,000 ■ $500–$750 ■ $250–$500 ■ $0–$250

The resulting trends reflect differences in caregiving workload density and how often high-impact routines recur:

- **Sandwich households rank highest on a per-household basis,** consistent with the aggregate pattern reflecting a dense concentration of overlapping responsibilities.

> “The work doesn’t end, if one task gets completed earlier the time will be spent on another task. It is a continuous responsibility and so any amount of assistance is good.”
>
> **—Middle-aged parent caring for children and aging parents**

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[14] Realization rates vary by persona based on observed differences in available free time and caregiving responsibility. Households with less discretionary time and higher caregiving intensity are assumed to realize a higher share of time savings, while households with more free time realize a smaller share. Persona-level realization factors are used for distributional analysis and scenario comparisons; aggregate estimates apply an averaged realization factor to avoid false precision

[15] Note: Per-household values can be influenced by which use cases are included in each function and how they apply to each persona. These results are directional indicators of burden intensity under the defined assumptions. Qualitative impacts are assessed separately as additive human impact effects

[16] Total quantitative value reflects the maximum potential opportunity value

- **Solo caregiver households derive higher value on a per-household basis, though lower than two-adult childcare households.** Solo caregiver households show meaningful value because all planning and follow-through is concentrated on one person (~$3,143 per household; ~$3,143 per caregiver). However, two-adult child-care households capture savings across two caregivers' time budgets, so value adds up at the household level (~$4,472 per household), even though the per-person value is lower (~$2,236 per caregiver). For example, in a two-parent household, AI can save time for both adults—one parent on school logistics and scheduling, and the other on chores, errands, and coordination—so gains compound across two calendars. In a solo caregiver household, the same tasks exist, but the time savings can only accrue to one person's day.
- **Two-adult elder-care households show moderate per-household value because elder care involves episodic but resource-intensive tasks that often require coordination, follow-up, and rework.** Although day-to-day task volume may be lower than in childcare households, managing appointments, medications, treatments, and paperwork generates recurring time demands and cost exposure when issues arise. AI value in this segment comes from reducing time spent and cost avoided from improved follow-through and minimal missed steps, delays, or emergency interventions.
- **Non-caregiver households rank lower** because fewer dependent-related care demands apply and fewer activities carry high failure costs. As a result, value is less driven by reliability- and risk-sensitive support and more concentrated in general household efficiency.

Caregiver structure determines where AI delivers the higher value (see Appendix Section 5.3)

Personas are defined across all US parent and caregiver roles and allow household activities to be valued consistently across childcare, elder care, chores, shopping, administration, and social coordination. Each persona corresponds to a different caregiving configuration e.g. households primarily supporting children, households focused on elder care, households managing both simultaneously, and households in which caregiving responsibility falls entirely on a single adult. While nearly all caregivers perform unpaid work, a caregiver's day-to-day reality is shaped by who carries the responsibility, the frequency of coordination, and how failure-sensitive the tasks are. This is where AI assistive support most directly improves follow-through and reduces dropped handoffs, and lowers the need for constant oversight. (See Appendix Section **5.1**.)

Persona name	Childcare household	Elder care household	Sandwich household	Solo caregiver household	Non-caregiver household
# of caregivers	2	2	2	1	1 or 2
Dependents	Child(ren)	Elder(s)	Child(ren) and elder(s)	Child(ren) and/or elder(s)	NA

Certain factors such as income level, employment intensity, disability status, and rural versus urban location serve as cross-cutting modifiers rather than standalone personas with distinct AI value profiles. These characteristics meaningfully shape the burden and value of caregiving work, as well as access to other resources, but they do not change the underlying caregiving roles played or the ways AI can contribute value. Treating them as modifiers preserves analytical clarity while allowing for nuanced valuation within each persona.

Theme 3: Value deepens with wellbeing gains where task criticality and care intensity are high

AI assistive support in household activities delivers its strongest wellbeing impact in activities where responsibility is continuous and the consequences of failure are meaningful (see Appendix Section **5.4**). These tasks may not be the most frequent, but they demand sustained attention and can carry emotional weight that extends beyond the task itself.

This reveals an important distinction: AI's value isn't always proportional to time saved, particularly in high-stakes caregiving and health management activities where the value lies in lowering background anxiety and restoring a sense of control, not merely in completing tasks faster.

Consider medication management for an elder living independently. An AI assistant that provides reminders, confirms doses are taken, and alerts family members to missed steps may save only 10 minutes per day. But it removes the constant worry about forgetting a critical dose and gives caregivers confidence that health routines are being followed. The value accrues not as time saved, but as peace of mind restored and fragility reduced.

This wellbeing value concentrates where three factors converge:

- **Meaningful consequences:** Errors in medication management, safety monitoring, or financial oversight don't just create rework—they can cascade into health crises, financial penalties, or breakdowns in care routines that take weeks to restore.
- **Persistent 'keeping track' burden:** Even when tasks are occasional, caregivers still need to continuously monitor whether critical steps are pending, creating constant background anxiety that persists between actual task execution.
- **Value accrues as stability:** Preventing a single failure can preserve routines, safeguard confidence in systems, and reduce stress over long periods, even when measurable time savings are modest.

Use cases involving elder care show the pattern most clearly. Aggregate time-and-cost value may appear lower in elder care because it affects fewer households and many tasks are episodic rather than daily—medication refills occur weekly, doctor appointments monthly, insurance renewals annually. However, qualitative wellbeing impact is disproportionately high because stakes are elevated and the need for constant oversight persists between these events.

An AI capability that confirms a parent never misses blood pressure medication or flags early signs of medication non-adherence may save only minutes per week. But it can prevent health scares, reduce caregiver anxiety, and avoid emergency interventions that disrupt life for days or weeks. The value accumulates as emotional security and stability rather than visible productivity gains.

> “The biggest value is not only saving time, but also not having to think about it all the time.”
>
> **—Urban professional caring for elderly parents in a rural area**

In these high-stakes settings, wellbeing gains depend on AI capabilities that enable reliable follow-through. Different AI capabilities create different levels of wellbeing value, provided that AI reliability is high enough to reduce cognitive effort rather than adding to it. Capabilities like health monitoring, financial organization, and care coordination create value by making critical systems feel dependable rather than fragile. They reduce the sense that daily life is held together by memory, sticky notes, and personal vigilance. For example, tracking medical appointments, insurance renewals, and payment deadlines into a single coherent flow prevents cascading disruptions—missed follow-up care, late fees, emergency rescheduling—that can destabilize household routines for weeks.

Lower-stakes assistance delivers cognitive relief without transforming wellbeing. Routine planning and information synthesis meaningfully reduce decision fatigue and mental effort, but their wellbeing impact is more modest because errors are easily corrected and consequences are limited. AI that helps summarize information, draft messages, or plan meals eases daily friction, but mistakes rarely create lasting stress or anxiety.

In high-criticality contexts, wellbeing value depends entirely on trustworthiness. Households repeatedly emphasized that dependable execution matters more than speed or comprehensiveness in domains where errors carry serious consequences. If an AI system supporting elder-care coordination intermittently omits information—fails to surface a lab follow-up or doesn't incorporate a recent medication change—caregivers can no longer trust it as a single source of truth. They need to continue to cross-check emails, portals, and notes ‘just in case,’ reintroducing the same background monitoring the AI was meant to remove.

In this scenario:

- Vigilance is not reduced, because errors remain plausible
- Confidence does not accumulate over time, because continuity feels fragile
- Any time saved is offset by verification and error-recovery effort

The AI shifts from preserving stability to adding cognitive overhead. It may still provide limited utility, but it no longer improves wellbeing because it fails to reduce the need for sustained attention. As one caregiver noted: “AI could do stuff, but still have to check it ... you should be checking everything it does.”

Exhibit **7** summarizes this distinction by showing, directionally, how different AI augmentation capabilities tend to contribute either to cognitive and psychological load reduction or to wellbeing outcome quality. Capabilities tied to higher criticality and sustained oversight, such as health monitoring, financial organization and accessibility support, tend to skew more toward wellbeing outcome quality. Lower-stakes support tends to skew more toward cognitive load relief.

Exhibit 7: Value by AI augmentation capability (directional)

(see Appendix Section **5.4**)

AI augmentation capability	Cognitive and psychological load reduction	Wellbeing outcome
Learning and tutoring	◕	◕
Routine assistance	◕	◕
Scheduling and coordination	●	◕
Health monitoring	◕	●
Information synthesis	◑	◑
Purchasing decision support	◑	◑
Accessibility and inclusion	●	●
Wellness planning	◑	◕
Nutrition guidance	◑	◕
Maintenance advisory	◑	◑
Financial organization	●	●
Social support	◔	◕

Legend—Qualitative

● Structural improvement
◕ Meaningful impact
◑ Noticeable improvement
◔ Marginal improvement

Theme 4: Value peaks where all three factors converge into high caregiving intensity and high frequency

The integrated results show that highest socio-economic value concentrates where three factors coincide—a higher number of dependents, a higher volume of repeating activities, and higher care intensity.

Exhibit 8: Aggregated quantitative and qualitative value

Household function	**Economic value ($B)**[17]	**Cognitive load**	**Wellbeing outcome**
Child, pet, and dependent care	$44B	◕	◕
Elder care	$8B	◑	◕
Household chores	$162B	◕	◑
Shopping and errands	$19B	◕	◔
Household management	$20B	◕	◑
Social coordination	$74B	◕	◑

Legend—Qualitative	● Structural improvement	◕ Meaningful impact	◑ Noticeable improvement	◔ Marginal improvement
Legend—Quantitative	■ $120B+	■ $80B–$120B	■ $40B–$80B	■ $0B–$40B+

See Appendix Sections **5.5** and **5.4** for valuation approach

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[17] Total quantitative value reflects the maximum potential opportunity value

Exhibit 8 shows how economic value, cognitive load reduction, and wellbeing outcomes align or diverge across household functions highlighting when AI assistive support could create a ‘triple win’ value versus when it primarily delivers one or two types of benefit:

- **When all three move together the activity is both high frequency and high-stakes:** These are activities where AI assistive support produces high time and cost savings along with improved wellbeing outcomes through reliability in high stakes activities. For example, AI assistive support in managing an infant’s daily care, where feeding and nap schedules, daycare handoffs, supply replenishment, illness monitoring, and caregiver coordination repeat every day. Here, AI creates economic value by reducing repeated admin time, cognitive relief by taking over continuous tracking and reminders, and wellbeing gains by making routines more reliable and reducing the stress of missed steps.
- **Cognitive load and wellbeing diverge across functions:** Cognitive load falls when AI takes over the ongoing work of monitoring, remembering, and coordinating. Wellbeing improves most when AI also makes routines more reliable by reducing missed steps and the stress that comes with higher stakes. As a result, some domains see meaningful mental relief even when the wellbeing uplift is smaller because the consequences of a miss are limited.
- **Wellbeing and economic value diverge in episodic, high-consequence domains, where wellbeing stays high even as aggregate dollars are smaller:** Economic value reflects time saved and costs avoided, so it tends to concentrate where activities repeat often and savings compound. Wellbeing reflects whether routines feel more dependable when the consequences of a miss are meaningful irrespective of the cumulative time or cost savings. Elder care illustrates this pattern. Because elder care is concentrated in fewer households and tasks may be episodic, aggregate time-and-cost value is lower, but wellbeing impact is strong because the consequences of missed steps are higher.

Valuation framework and evidence base for household AI socio-economic value

Valuation framework

A holistic framework is needed to more fully capture the value of AI assistance in household life. It should encompass both quantifiable economic impacts and qualitative human-centered outcomes—factors often missed by standard productivity measurements and valuation methods. The framework used in this analysis looks at both:

- **Quantitative value:** Time saved and costs avoided, measured through time-diary data and market-rate substitution
- **Qualitative value:** Cognitive load reduction and wellbeing gains, assessed through structured research frameworks

The framework used is modular and customizable, allowing value to be isolated by AI capability, stakeholder behavior, or specific quantitative and qualitative components. This enables flexible scenario testing as more information emerges, while confirming each benefit is clearly traceable and defensible (see Exhibit **11**).

Data foundation

The framework is grounded in BLS ATUS time-use data, US Census data, market research, and caregiver interviews:

- **BLS time-use[18] data anchors the baseline:** It shows where households spend time today and which household functions carry the largest share of unpaid work.
- **Market research translates use cases into AI assistive support opportunities:** Twenty use cases[19] are defined at the level of real activities and the practical support required to complete them, based on capabilities available today and informed by research on cognitive labor and 'mental load' so invisible follow-through work is included, not just visible tasks.
- **US Census data defines caregiver personas to make the valuation context-specific:** Personas capture differences in dependency load, responsibility intensity, and time scarcity, and are sized using US Census evidence to support population scaling.
- **Caregiver interviews validate relevance and adoption conditions:** Interviews confirm workflows reflect real pain points, pressure-test key assumptions, and clarify conditions for adoption such as accuracy, privacy, and the ability to review and correct outputs.

With this framework and data foundation in place, the next sections demonstrate how quantitative and qualitative value is calculated for AI assistive support.

3.1 Quantitative value—Time saved and cost reduced

When AI reduces the effort required to manage, remember, decide, or follow through on everyday responsibilities, it can return tangible hours to a caregiver's day. This reallocation represents a direct economic benefit as well as a measurable improvement in how time is spent. In parallel, by preventing missed appointments, renewals, or bill payments, AI helps avoid concrete financial penalties and downstream costs, reinforcing both household efficiency and stability (see Appendix Section **5.5.2** for assumptions on quantitative value).

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[18] BLS American Time Use Survey (ATUS): https://www.bls.gov/tus/ , OECD unpaid household activities valuation: https://www.oecd.org/en/publications/including-unpaid-household-activities_bc9d30dc-en.html

[19] Daminger (2019) cognitive labor/mental load: https://www.jstor.org/stable/48595780, Sweller (1988) cognitive load theory: https://www.sciencedirect.com/science/article/pii/0364021388900237, Prospective memory overview: https://profiles.wustl.edu/en/publications/prospective-memory-an-overview-and-synthesis-of-an-emerging-field

Approach

The calculation starts with the AI assistive support use cases and applies them within each caregiver persona. For each use case, the annual value per household is estimated by combining time saved within the workflow and costs avoided when failures are prevented. Those per-household values are then scaled to population totals using persona sizing and adoption assumptions. (See Exhibit **9** for framework to estimate quantitative value.)

Step 1: Estimate annual economic value per-household for each use case, within each persona:

- **Establish a baseline on time spent on household activities:** BLS time-use data organized by household function reflects how much time is spent on unpaid work today.
- **Estimate time saved by AI assistive support:** Each use case is assigned a frequency and burden level to estimate the time AI assistive support can credibly reduce based on current capabilities. For example, when AI assistive support is used to summarize requirements from a school notice to next steps, time savings come from summarizing requirements, drafting the response, and turning deadlines into tracked tasks, reducing repeated reading and follow-ups.
- **Determine measurable costs avoided:** Cost avoidance is included only where a missed step produces a measurable expense. For example, renewals and bill follow-through results in fewer late fees, penalties, and last-minute paid fixes.
- **Convert time saved into an economic value proxy and apply realization:** Time saved is valued using wage-based proxies aligned to task complexity. A realization factor is applied so only a share of time saved is treated as economically realized, reflecting that not all time saved converts into monetizable output.

Step 2: Scale per-household values to total population levels using adoption and modifiers: Per-household values are scaled using persona[20] [21] population sizes and adoption assumptions, with cross-cutting demographic modifiers applied where they affect applicability.

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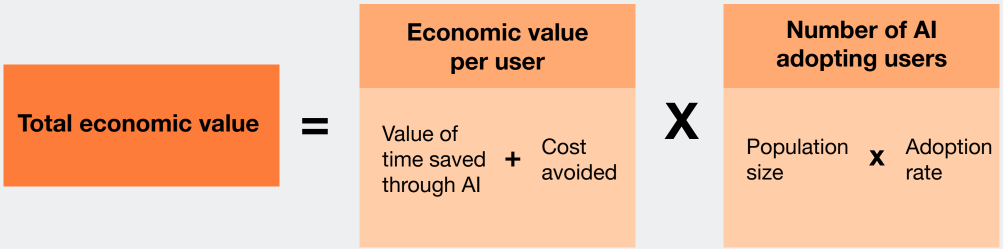
[20] https://usa.ipums.org/usa/sda/, https://data.census.gov/table/ACSDP1Y2024.DP02

[21] Diffusion of Innovations (Rogers, 2003): https://www.simonandschuster.com/books/Diffusion-of-Innovations-5th-Edition/Everett-M-Rogers/9780743222099, Parasuraman & Riley (1997) humans and automation: https://web.mit.edu/16.459/www/parasuraman.pdf

Exhibit 9: Framework for estimating total quantitative value



Economic value per user: Estimated through annual value from time reallocation and cost avoidance per AI adopting user.

- **Value of time saved through AI:** Hours saved on household tasks,[22] valued using wage-based proxies[23] (benchmark cost and opportunity cost) and multiplied by a realization factor to reflect that only a share of time is economically realized and varies by user[24]
- **Costs avoided:** Direct out-of-pocket costs[25] avoided, such as fees, penalties, and reliance on paid substitutes
- **Output:** Net annual quantitative value per AI-adopting user

Number of AI-adopting users: Estimated applying adoption assumptions to relevant household personas and demographics.

- **Population size:** Size of each caregiver scenario (or persona), adjusted for demographic modifiers (e.g. income level, rural/urban, employment intensity)
- **Adoption rate:** Expected AI adoption[26] by persona and use case over the modeled time period[27]
- **Output:** Number of AI adopting users

(See Appendix Section **5.5** for the detailed quantitative approach)

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[22] Hours saved are computed as # hrs for the activity factored by productivity benefit (%) of AI assistive support

[23] Wage-based proxies can understate or overstate value depending on what a household would realistically pay for help

[24] https://www.bls.gov/news.release/atus.t11B.htm, https://link.springer.com/article/10.1007/s10640-009-9331-3

[25] Only measurable out-of-pocket costs are included; many spillover and long-term costs are not captured

[26] Directional adoption rate of 40% is used in the analysis, real adoption depends on trust, integration, and household context

[27] https://www.pewresearch.org/short-reads/2025/06/25/34-of-us-adults-have-used-chatgpt-about-double-the-share-in-2023/ https://www.thebusinessresearchcompany.com/report/artificial-intelligence-ai-in-home-automation-global-market-report

Qualitative value—Cognitive load reduction and wellbeing gains

While time and dollar calculations capture economic opportunity cost, they systematically miss the invisible mental and emotional work that shapes household wellbeing. Much of the caregiving burden is invisible: a task can take minutes to complete but require sustained tracking, anticipation, and worry. Qualitative valuation captures this human-impact across two outcomes: cognitive load reduction, including the ongoing mental effort required to remember, plan, anticipate, monitor, and coordinate household activities, and wellbeing gains (see Exhibit **10** for the framework to estimate quantitative value).

Approach

Qualitative impact is assessed using directional 1–4 scales, enabling consistent and defensible comparisons across use cases. The scoring approach is grounded in established research from cognitive psychology, human factors, public health, and wellbeing economics. Each use case is scored on two distinct qualitative outcomes that measure different effects.

Outcome 1: Cognitive and psychological load reduction

Cognitive and psychological load reduction measures how much AI assistive support reduces the ongoing mental work[28] of caregiving—remembering, tracking, anticipating, and coordinating. It captures relief from the 'keeping track' burden and the effort of staying on top of open loops. It does so by:

- **Assigning a score to each use case based on the stage in the cognitive process it impacts:** Each use case is tagged to the primary stage where AI assistive support provides the most help. Stages reflect increasing baseline load as responsibility becomes more continuous.

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[28] https://www.cs.uml.edu/~holly/91.550/papers/sheridan-autonomy.pdf, https://andymatuschak.org/files/papers/Sweller%20-%201988%20-%20Cognitive%20load%20during%20problem%20solving.pdf, https://faculty.washington.edu/jdb/345/345%20Articles/Baumeister%20et%20al.%20%281998%29.pdf, https://www.all-about-psychology.com/stress-cognitive-load-decision-making.html

- **Adjusting the scoring using three human-factor checks:** Stage in the cognitive process alone is not enough, two tasks in the same stage can feel very different in real life. The approach adds an additional score adjustment based on the human-factor dimension[29] the use case falls into. For example, both “monitor medication adherence” and “track a weekly physical therapy visit” are monitoring tasks, but medication adherence carries higher ongoing vigilance, more ‘keeping it in mind,’ and higher failure cost, hence it should score higher even within the same stage.

Outcome 2: Wellbeing outcomes and quality of life

Wellbeing outcomes and quality of life measures how much AI assistive support improves lived experience and stability—less worry, fewer disruptions, and greater confidence that important things will not fall through. It captures outcomes that matter even when minutes saved are modest, especially where consequences are meaningful.

Impact is assessed using a composite score, because most use cases create a blend of effects rather than a single type of benefit. Each use case is rated across four outcome qualities, and the scores are combined in a way that puts more emphasis on outcomes that persist and compound over time. The four outcome qualities are: immediate convenience, improved reliability of routines, risk reduction, and durable life trajectory gains such as sustained capability, independence, and longer-term options.

Together, these dimensions check that qualitative value reflects not just short-term ease, but longer-term confidence, peace of mind, and resilience. This approach captures forms of value that are central to caregiving such as feeling less alone in decision-making, having greater confidence in health or safety routines, or being able to engage more fully in relationships, even when no single task is fully automated or time savings are modest.

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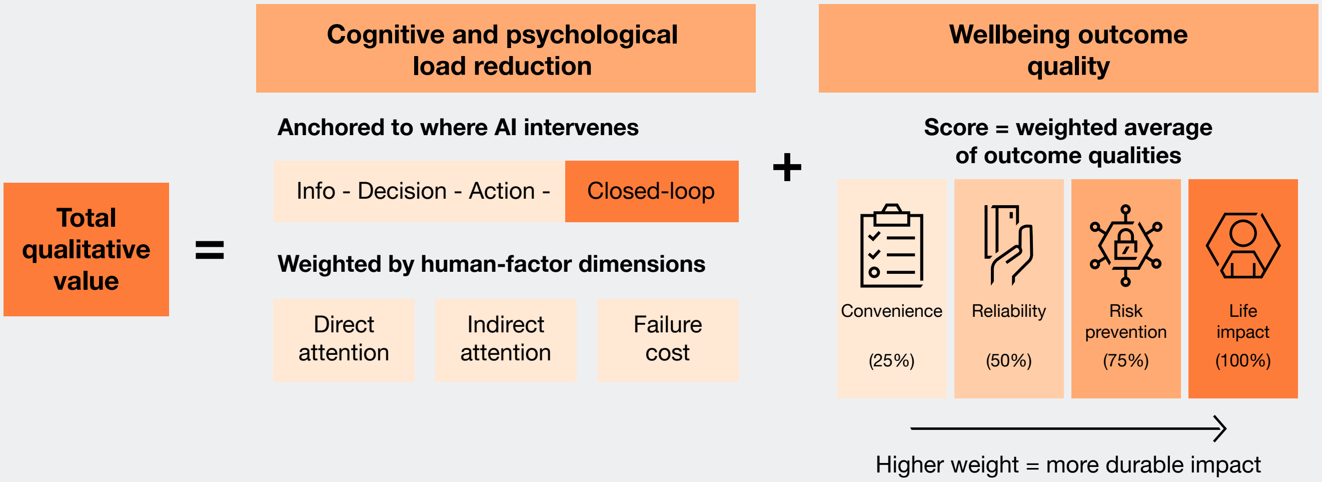
[29] Daminger (2019) cognitive labor/mental load: https://www.jstor.org/stable/48595780, Sweller (1988) cognitive load theory: https://www.sciencedirect.com/science/article/pii/0364021388900237, Prospective memory overview: https://profiles.wustl.edu/en/publications/prospective-memory-an-overview-and-synthesis-of-an-emerging-field

Exhibit 10: Framework for assessing qualitative value



The score is then adjusted by three human-factor dimensions:

- Direct attentional burden: The extent to which the task requires sustained active engagement
- Indirect attentional burden: The degree to which the task occupies background mental space
- Failure cost: The significance of consequences if the task is missed or performed poorly

Outcome 1: Cognitive and psychological load reduction

A 1–4 score[30] is assigned to the relevant cognitive stage:

- Information acquisition
- Decision selection
- Action implementation
- End-to-end monitoring and management

Outcome 2: Wellbeing outcomes and quality of life

Estimated through a weighted composite score[31] of outcome durability:

- Convenience (0.25): Immediate relief without structural change
- Reliability improvement (0.50): Increased consistency and reduced disruption
- Risk reduction (0.75): Avoidance of adverse event
- Durable life impact (1.00): Sustained capability, independence, or stability

Each use case is rated[32] across these qualities, and the weighted composite determines the final wellbeing score.
(See Appendix Section **5.4** for the detailed qualitative approach.)

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[30] The qualitative scores compare relative impact across use cases; they are not exact magnitudes or percentage changes in cognitive reduction

[31] The qualitative scores compare relative impact across use cases; they are not exact magnitudes or percentage changes in wellbeing

[32] The same use case can deliver very different relief depending on household constraints (time scarcity, disability, rural access, backup support), which a single score can mask

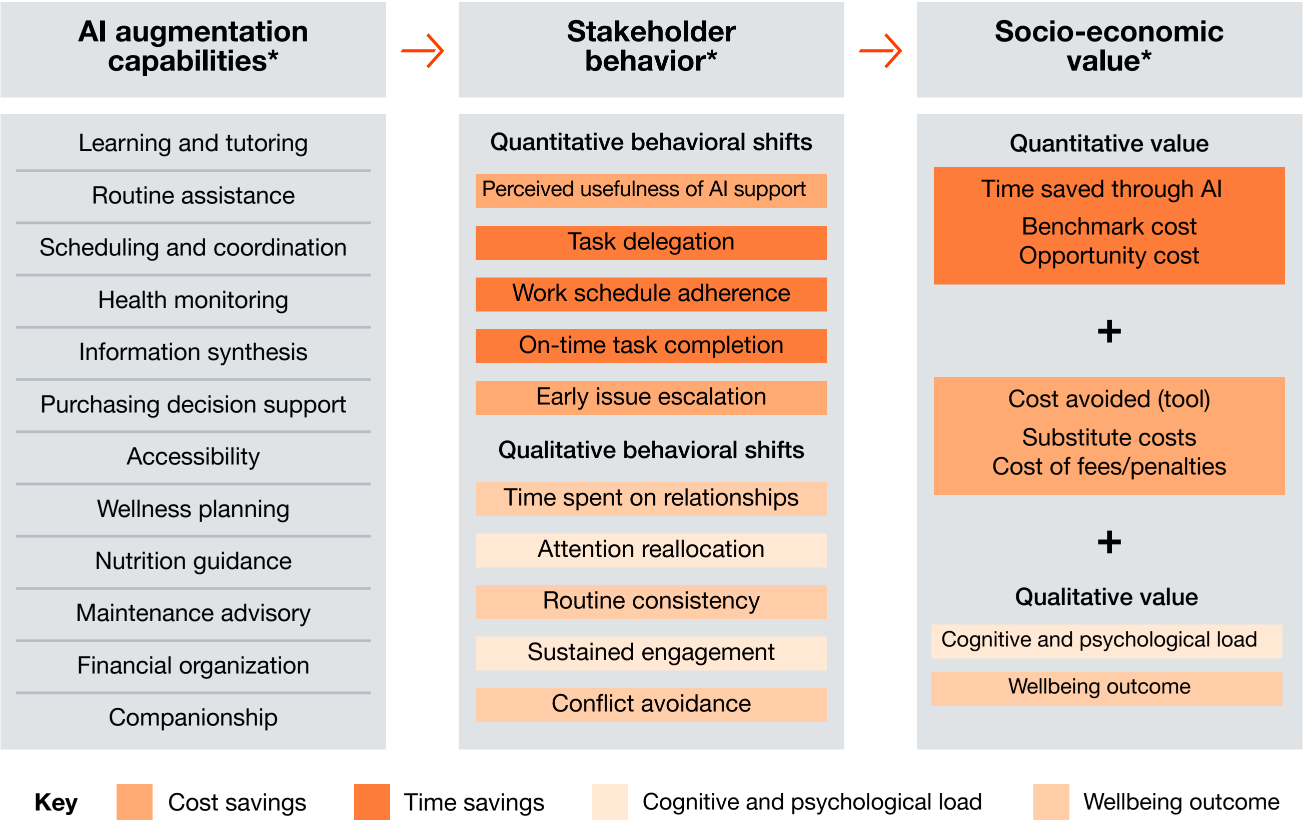
Valuation summary

Journey from AI use cases to socio-economic value

The valuation framework is modular and customizable, allowing value to be isolated by AI capability, stakeholder behavior, or specific quantitative and qualitative components. This enables flexible scenario testing as more information emerges, while confirming every benefit is clearly traceable and defensible.

AI creates household value by changing how caregivers manage daily responsibilities, and those behavioral shifts are what produce both quantitative and qualitative outcomes. The map below separates behaviors from valuation: it quantifies time and cost savings where appropriate, while treating wellbeing, cognitive load, and relationship effects as research-backed qualitative drivers. Because each pathway is explicit, components can be included, excluded, or weighted differently—for example, removing substitution savings, excluding wellbeing outcomes, or disconnecting a behavior link—while showing exactly how much value remains without changing the overall structure. This makes the analysis flexible for scenario testing and defensible because every benefit ties back to a specific capability-to-behavior-to-outcome pathway.

Exhibit 11: Value map—Pathway from AI augmentation capabilities to changes in stakeholder behavior and socio-economic value



AI augmentation capabilities* → **Stakeholder behavior*** → **Socio-economic value***

AI augmentation capabilities*

- Learning and tutoring
- Routine assistance
- Scheduling and coordination
- Health monitoring
- Information synthesis
- Purchasing decision support
- Accessibility
- Wellness planning
- Nutrition guidance
- Maintenance advisory
- Financial organization
- Companionship

Stakeholder behavior*

Quantitative behavioral shifts

- Perceived usefulness of AI support
- Task delegation
- Work schedule adherence
- On-time task completion
- Early issue escalation

Qualitative behavioral shifts

- Time spent on relationships
- Attention reallocation
- Routine consistency
- Sustained engagement
- Conflict avoidance

Socio-economic value*

Quantitative value

Time saved through AI
Benchmark cost
Opportunity cost

+

Cost avoided (tool)
Substitute costs
Cost of fees/penalties

+

Qualitative value

- Cognitive and psychological load
- Wellbeing outcome

Key Cost savings Time savings Cognitive and psychological load Wellbeing outcome

*Each capability, behavior, and value component can be independently included or excluded

Scenarios that amplify socio-economic value

With the capability-behavior-outcome pathways defined, scenario analysis then tests which assumptions change the most value. The scenarios below highlight the conditions that most strongly amplify quantitative versus qualitative outcomes:

- **Deeper automation:** Value concentrates in activities with the largest time-reduction potential as time-consuming tasks become more automated.
- **Broader adoption:** Value concentrates in widely applicable use cases as adoption expands, even if per-user savings are modest.
- **Effective re-use of time saved:** Realized value increases when saved time comes back in usable blocks that can be redirected to productive activity.
- **End-to-end support:** Value concentrates in activities with sustained mental and emotional overhead, as AI reduces ongoing remembering, interpreting, and worrying, providing greater cognitive relief.
- **Higher reliability:** Wellbeing gains concentrate where failure is emotionally costly as AI makes care, health, and safety routines more consistent and less dependent on vigilance.

Looking ahead—from reactive AI to proactive execution

Over time, researchers expect[33] AI use cases to move from helping caregivers plan or interpret information reactively to proactively running workflows on their behalf with explicit permissions. Reactive support helps a caregiver do the work, while proactive support helps move the work forward. As both capabilities (integration, reliability, workflow execution) and adoption (trust and comfort with delegation) improve over time, the same use cases can move along this spectrum, shifting from “help me decide and organize” toward “help me complete and confirm,” while keeping decision authority with caregivers.

Current state: Reactive support today
AI acts as a support layer across existing tools by summarizing and synthesizing information, drafting messages, translating inputs into reminders, and helping plan routines and schedules. It reduces coordination friction and missed steps, but the caregiver still completes most actions.

Future state: Proactive execution over time
Over time, household AI is expected to run more end-to-end workflows. This includes monitoring what is pending, anticipating next steps, completing routine actions across systems, confirming completion, and escalating exceptions—with recommended remediations—for approval. As capabilities and adoption mature, proactive execution may expand from digital tasks into selected physical routines supported by connected devices and emerging robotics.

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[33] https://arxiv.org/pdf/2506.06576

Scaling enablers: from current state to the future state

To unlock value at scale, household AI will likely evolve from providing one-off suggestions to managing complex, multi-person workflows. This future state will be defined by the following core capabilities:

- **End-to-end task management:** In the future, when a user delegates a task like "make a dentist appointment for Sarah," the AI could manage the entire workflow: cross-referencing the family calendar for open slots, shortlisting nearby dentists based on location and patient reviews, booking the appointment, adding the confirmed time to the right calendars, and confirming completion to the user. It will only escalate back to the user if an exception occurs, like no appointments being available.
- **Trusted delegation:** Future AI assistants will operate like a trusted deputy with user-defined rules of engagement. They may execute recurring tasks like reordering groceries within preset preferences, while actions like paying an unusually large bill or changing a medical appointment require a confirmation step that cannot be bypassed.
- **A shared 'household OS' with household role-based permissions:** AI could function as a shared operating system for the family, with a clear understanding of different roles, handoffs, and decision norms. For example, the assistant sees a field trip fee posted in the school portal and automatically routes it to the parent who handles school payments. It prepares the payment for confirmation, records the receipt, updates the family calendar, and keeps everyone aligned with role-appropriate notifications.
- **Seamless integration across digital life:** In the future, the AI could be a deeply integrated layer across various tools a family uses. When a school portal posts a new permission slip, the AI could automatically create a to-do item, attach the document, and add the deadline to the calendar without the user having to do anything. The AI will simply work in the background, making digital life more connected and automated.
- **Digital to physical actuation:** The assistant could coordinate digital actions with connected devices and third-party services to complete physical tasks. For example, when pantry levels fall below a threshold the AI will check preferred retailers, place a replenishment order, schedule delivery to match a parent's availability, and update the household inventory, closing the loop from sensing to physical fulfillment.

These elements reinforce that household AI can be most effective when it supports autonomy and coordination, keeps the caregiver in control of sensitive decisions, and improves reliability without replacing family relationships.

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Appendix

5.1 Unpaid household activities

The following outlines the core categories of unpaid household work derived from the full universe of unpaid household activities. These categories structure the identification of AI use cases and provide a consistent lens for comparing impact across households and populations. These categories span a broad set of physical, cognitive, and relational tasks that sustain daily life and long-term wellbeing. Based on time-use data[34] and household economics research,[35] these activities can be grouped into a set of core household functions that reflect how households actually organize and manage unpaid work:

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[34] https://www.bls.gov/tus/tables/a1-2024.pdf

[35] https://ilostat.ilo.org/topics/sdg/, https://www.apec.org/docs/default-source/publications/2022/3/unpaid-care-and-domestic-work-counting-the-costs/222_psu_unpaid-care-and-domestic-work.pdf, Grossman, M. (1972). On the Concept of Health Capital https://www.jstor.org/stable/1830580, Becker (1965), A Theory of the Allocation of Time: https://www.jstor.org/stable/2719642

Category	**Description**	**AI augmentation capabilities**
Child, pet, and dependent care	Ongoing care, supervision, and coordination required to support children and other dependents in daily life and development such as supervising children, supporting learning and homework	Scheduling childcare and transport; monitoring routines and activities
Elder care	Assisting with daily living needs; managing medications and appointments; coordinating caregivers and family support; monitoring safety and wellbeing	Medication management, reminders, scheduling and coordinating medical appointments, transport and caregiving needs
Household chores	Preparing meals; cleaning living spaces; doing laundry; maintaining home and vehicles; handling minor repairs	Routine physical tasks that keep the household functioning, including food preparation, cleaning, laundry, and basic upkeep
Shopping and errands	Purchasing groceries and household supplies; buying clothing and school items; picking up prescriptions; handling in-person banking or payments	Activities involved in acquiring goods and services for the household, including purchasing essentials and completing in-person tasks
Household management	Budgeting and paying bills; managing household schedules; arranging appointments and services; completing school, health, and administrative forms	Planning, organizing, and administrative work required to manage household schedules, finances, appointments, and paperwork
Social coordination	Maintaining family communication; organizing social obligations and gatherings; mediating conflicts; sustaining support networks	The cognitive and emotional work of maintaining relationships, coordinating social obligations, and managing interpersonal dynamics

5.2 Use cases for AI assistive support in household life

The following outlines the AI impact-area use cases used to structure and assess how AI can augment unpaid household activities and generate value. AI applications are organized around six key domains of unpaid household work (see Appendix Section **5.1**).

Across these domains, AI is positioned to reduce cognitive burden, improve reliability, and support better outcomes without replacing the human relationships at the center of household life. Each use case is grounded in capabilities that already exist in today's AI ecosystem, drawing on examples from current consumer and enterprise tools, including mainstream platforms, as well as more specialized applications. The use cases are therefore illustrative of what is feasible with existing AI, highlighting the specific services or tasks being augmented and how AI can practically step in to support personal life management today.

The examples explicitly span generational roles, include non-affluent and time-constrained households, and reflect cultural and linguistic contexts present in US families. Across all use cases, AI is positioned as supportive and augmentative, focused on reducing cognitive and coordination burden rather than replacing human judgement. Privacy and safety are reinforced by relying on non-identifiable data and avoiding clinical or financial decision-making, while clearer emphasis is placed on the economic value of AI through reduced lost wages, improved follow-through, and greater stability in daily life.

5.2.1 Child, pet, and dependent care

The ongoing care, supervision, and coordination required to support children, pets, and other dependents who cannot fully manage their own needs. This includes daily routines, safety oversight, learning and development support, feeding, transport, and monitoring. This work is continuous, responsibility-heavy, and cognitively demanding. AI can help lighten this load by supporting engagement, coordination, and follow-through while maintaining appropriate supervision:

AI service	Description and real-world example
Child engagement, learning, and supervision[36]	Ayesha (29, emerging household manager) works evening shifts and relies on staggered childcare support. During gaps, she uses an AI assistant to provide her 8-year-old with consistent homework support through step-by-step explanations, read-aloud instructions, and age-appropriate answers and stories. While Ayesha continues working nearby, the AI helps her child stay engaged and make progress independently, stepping in only when needed. The assistant tracks areas where her child struggles and surfaces concise insights for Ayesha to review later. Rather than replacing parental involvement, the AI enables Ayesha to multitask more effectively, confirming her child receives steady learning support while she meets work responsibilities.
Infant needs interpretation and response guidance[37] [38]	Daniel (19, emerging household manager) feels overwhelmed trying to interpret his newborn's cries—unsure whether his baby is hungry, tired, or uncomfortable. Daniel uses an AI assistant that analyzes the sound of his baby's cries and suggests likely needs. While not perfect, the guidance helps him respond faster and with more confidence, easing anxiety during stressful moments.
Child nutrition safety and dietary tracking[39] [40] [41]	Sophie (34, primary household manager) wants to confirm her baby's diet is safe while staying on top of routine care. Tracking ingredients, reactions, and medical schedules quickly becomes overwhelming. Sophie uses an AI assistant that scans baby food labels, logs what her baby eats, and monitors for patterns—such as skin rashes or discomfort following specific foods. When potential reactions emerge, the AI flags them and provides guidance on next steps. The same assistant tracks doctor milestone schedules and proactively schedules pediatric appointments, sending Sophie reminders to confirm. Instead of manually tracking meals, reactions, and medical timelines, Sophie relies on the AI to coordinate nutrition safety and preventive care—allowing her to focus on feeding and bonding.
Child routine and behavior training	Maya (25, emerging household manager) is a stay-at-home mother of her 3-year-old son, Leo, who is learning everyday routines such as potty training, bedtime transitions, and independent play. Leo's progress varies day to day, requiring Maya to constantly adjust approaches and repeat guidance while managing the household. Maya uses an AI routine support assistant to help structure simple, age-appropriate routines across key moments like meals, bedtime, cleanup, and getting dressed. The AI breaks routines into short, consistent steps, suggests gentle prompting language, and times reminders to Leo's natural patterns rather than fixed schedules. When setbacks occur, the AI offers calm, non-judgemental alternatives and adapts guidance over time based on what works best. By offloading routine planning and reinforcement, the AI reduces Maya's daily decision-making and emotional labor, allowing her to spend more engaged, positive time with her child.
Accessibility support and adaptive engagement[42]	Alex (42, primary household manager) supports his teenage daughter, Amy, who has Down syndrome and needs help with attention, memory, and daily routines. Everyday tasks like getting ready, preparing snacks, and transitioning between activities require repeated prompting and supervision. Alex uses an AI accessibility assistant that creates simple visual daily schedules, breaks tasks into step-by-step guidance, and delivers calm voice or visual prompts paced to Amy's responses. The AI simplifies instructions, repeats guidance when steps are missed, and prepares her for schedule changes in advance. It tracks which steps need support and shares non-identifiable insights with Alex, reducing repetition while building independence.

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[36] https://www.khanmigo.ai/

[37] https://sherwood.news/tech/do-baby-cry-translators-work/

[38] https://www.uclahealth.org/news/article/chatterbaby-an-app-that-helps-parents-know-when-and-why-their-baby-is-crying-used-in-new-research

[39] https://eatsafeai.app/

[40] https://emitrr.com/blog/how-ai-agents-are-transforming-pediatric-practices/

[41] https://www.freetofeed.com/post/meet-vana-your-24-7-ai-assistant-for-navigating-food-reactivity-and-allergies

[42] https://ndss.org/sites/default/files/2025-08/NDSS%20AI%20Resource.pdf

AI service	Description and real-world example
Pet nutrition and health[43] [44]	Meera (36, emerging household manager) wants to keep her pet healthy, well-behaved, and on a consistent routine, but tracking food safety, reactions, vet schedules, training needs, and daily tasks quickly becomes overwhelming. Meera uses an AI pet care assistant that scans pet food labels, logs what her pet eats, and detects patterns such as skin irritation after certain treats. The same assistant tracks vaccinations and routine vet care, proactively scheduling appointments and sending reminders. Based on observed behaviors and daily routines, the AI also provides tailored training guidance—such as short exercises to reduce barking or improve leash behavior—and adjusts recommendations over time. Beyond health and training, the AI manages daily routines like feeding, walking, and medications, and consolidates updates from pet sitters or walkers. Instead of juggling multiple tools and remembering countless details, Meera relies on the AI to coordinate nutrition, health, training, and routine care—freeing her to focus on quality time with her pet.

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[43] https://carepet.ai/

[44] https://www.petallergyscan.com/

5.2.2 Elder care

Support for aging household members that combines daily assistance with ongoing care coordination. This includes managing medications and appointments, coordinating caregivers and family support, monitoring health and safety, and enabling continuity of care, often under conditions of uncertainty and high emotional stakes. AI use cases in this domain focus on supporting independence while reducing caregiver stress and worry:

AI use case	Description and real-world example
Medical note synthesis and care planning[45]	Jennifer (34, primary household manager) was overwhelmed after her father's week of specialist doctor appointments. Each visit produced notes, labs, and follow-up instructions—often overlapping or conflicting—and spread across portals and paperwork. Jennifer used an AI assistant, uploaded non-PII information through pictures and doctor notes to compile the documents into a single, structured summary. The AI highlighted each doctor's recommendations, flagged follow-ups, and surfaced where guidance aligned or differed. What once took hours of manual review was condensed into minutes. Jennifer could now quickly understand the care plan and coordinate next steps and schedule follow ups. AI summarizes, organizes, and supports routines using non-identifiable data and user-provided information; it does not diagnose, treat, or replace professionals.
Elder engagement, companionship, and cognitive stimulation[46]	Mr. Lim (79, care receiving senior), spends long stretches of the day alone, with family members checking in when they can but unable to be present consistently. He is most comfortable speaking in his native language and engaging with familiar cultural references, which can make generic digital tools feel isolating rather than supportive. His family uses an AI companion that supports conversation and light cognitive engagement through voice or tablet interaction, adapting to his preferred language and cultural context. The AI engages Mr. Lim in simple daily conversations, asks about his routines, shares familiar stories or humor, and offers tailored activities such as trivia from his era or gentle memory exercises. Over time, it adapts to his responses and engagement patterns, generating non-identifiable summaries that help family members stay aware of changes between visits.
Medication management and monitoring[47] [48]	Linda (67, care receiving senior) who lives independently is managing multiple prescriptions and wants to maintain her independence, but sometimes forgets medications or misses steps in daily routines like bathing—creating anxiety for both her and her son. Linda uses an AI assistant that provides gentle, step-by-step guidance during daily activities such as bathing, along with timely medication reminders. The AI asks for confirmation when medications are taken, offers safety prompts during routines, and alerts her son if doses or steps are missed. Instead of requiring frequent check-ins or direct supervision, the AI supports safe, independent daily living while giving her family confidence that critical routines are being followed.

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[45] https://www.aarp.org/caregiving/basics/how-ai-can-help-caregivers/

[46] https://elliq.com/?srsltid=AfmBOorN9AbHZq4YmtfwX8zyRZG-XSK0GGRk1XXPLn5EbzYn52Mfehv6

[47] https://onscreeninc.com/blogs/news/new-feature-tasks-and-routines?srsltid=AfmBOoqebOh2HoXbn1OlybhuxR3I8z3JkIjoDYdn0ZCv-6ATqRyR7r-7

[48] https://www.foxnews.com/health/ai-app-helps-aging-adults-manage-prescriptions-photo-personal-health-assistant

AI use case	Description and real-world example
Health triage and care navigation[49] [50]	Ravi (45, primary household manager) felt overwhelmed when his father showed signs of a stroke. Unsure what to do first, Ravi turned to an AI health navigator for guidance. The AI walked him through immediate next steps, helped him understand what information to gather, and later assisted with organizing follow-up care. In non-emergency situations, Ravi also uses the AI as a first stop for health questions without sharing any PII/ PHI—describing symptoms, sharing photos, and receiving guidance on whether to manage at home or seek medical care, along with preparation checklists for doctor visits. Instead of searching multiple sources or calling hotlines, Ravi relies on the AI to consolidate information and guide decisions with clarity.
Hearing and vision support[51]	Ruth (78) lives alone and has declining vision and moderate hearing loss, which makes everyday tasks feel onerous and exhausting. When she isn't wearing her hearing aids, she misses the microwave timer and sometimes doesn't notice her phone ringing, and she struggles to read medication labels, mail, and appointment instructions. To stay independent, Ruth uses an AI reading assistant to scan and listen to mail, labels, and medication directions, and she uses a smart-home alert setup that routes key household sounds into visible or vibrating alerts, with live captioning available for conversations when needed. These tools make information accessible by default and reduce 'I didn't notice' moments that can lead to missed steps, while helping Ruth stay confident and in control of her daily routines.

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[49] https://www.multicare.org/vitals/using-ai-to-quickly-assess-stroke/

[50] https://www.aarp.org/caregiving/basics/how-ai-can-help-caregivers/

[51] https://www.naturalreaders.com/usecase/elderly.html, https://hearinginsider.com/smart-home-alerts

5.2.3 Household chores

Routine physical tasks required to keep the household functioning day to day. This includes work that is repetitive, time-consuming, and essential but frequently undervalued such as food preparation, cleaning, laundry, basic maintenance, and minor repairs. AI can augment this domain by coordinating tasks, scheduling services, and reducing the mental effort required to manage ongoing household upkeep:

AI use case	Description and real-world example
Chore coordination and task allocation[52]	Carlos and Maria (both 51) juggle work, kids' schedules, and household chores, and they often end up tracking who should do what and reminding everyone to follow through. They use an AI chore coordinator that keeps a shared task list, assigns recurring chores based on availability and past completion, and continuously checks the family calendar and local weather for disruptions. If soccer practice is scheduled and rain is forecast, the AI flags the risk, suggests a backup plan, and adjusts chores depending on whether practice is likely to be canceled. If a late meeting or work trip is added to a parent's calendar, the AI alerts the other parent about any household tasks or kid activities that will be missed and proposes reassignment. When someone can't complete a task, the AI reassigns it neutrally and sends updated reminders so follow-through doesn't depend on Carlos and Maria.
Meal planning and grocery coordination[53]	John (46, primary household manager) used to rely heavily on takeout because weekly meal planning and grocery lists felt overwhelming. John uses an AI assistant that suggests a weekly meal plan based on his family's preferences. On Sunday, it suggests a dinner menu for the week based on their dietary preferences and what's already in the fridge. For example, seeing chicken and cheese on hand, it proposes a simple enchilada Monday. It compiles a shopping list for missing ingredients and can directly place an order for delivery on Instacart, adjusting when recipes overlap or ingredients are already on hand.
Asset maintenance and diagnostics[54]	Elena (43, primary household manager) often struggles to keep up with maintaining household assets—appliances, clothing, and vehicles. When something goes wrong, she should interpret unfamiliar signals: a washing machine error code, a stubborn stain, or an unusual noise from the car. Deciding what's urgent and what to do next requires time, research, and technical know-how. Elena uses an AI assistant that acts as a household maintenance and diagnostics manager. She can upload a photo of a stain, record a sound from her car, or share an appliance alert. The AI explains the issue in plain language, assesses urgency, and recommends next steps—ranging from simple adjustments to scheduling professional service. Instead of relying on manuals, online forums, or guesswork, Elena uses the AI to make confident, timely decisions. The assistant reduces the cognitive burden of troubleshooting while helping prevent small issues from becoming costly problems.

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[52] https://reclaim.ai/blog

[53] https://www.ohai.ai/

[54] https://www.youtube.com/watch?v=LtZtGYmUiO0&t=11s

5.2.4 Shopping and errands

Activities involved in acquiring goods and services needed for household operation. This includes activities like purchasing groceries and supplies, picking up prescriptions, buying clothing or school items, and completing in-person tasks such as banking or payments. These activities require ongoing planning, comparison, and coordination. AI can support this domain by simplifying decision-making, anticipating needs, and streamlining execution:

AI use case	**Description and real-world example**
Purchasing and consumption decision support[55]	Renae (36, primary household manager) spends significant time tracking what the household needs, comparing prices, and deciding when and where to buy—often across groceries, school supplies, household goods, and occasional big-ticket items. Renae uses an AI purchasing manager that monitors household consumption, flags upcoming needs, and recommends purchasing options based on price, quality, and past preferences. When it's time to restock supplies or make a larger purchase, the AI compares vendors, highlights tradeoffs, and suggests the best option, escalating only when decisions require her approval. Instead of repeatedly checking inventories, researching products, and making ad-hoc decisions, Renae relies on the AI to manage routine purchasing and support more complex buying choices with clear recommendations.

5.2.5 Household management

The planning, organizing, and administrative work required to keep household life functioning smoothly. This includes budgeting and bill payment, managing schedules, arranging appointments and services, and completing school, health, or government paperwork. These activities carry high cognitive load and meaningful failure risk. AI can augment household management by reducing administrative friction, improving follow-through, and lowering the likelihood of costly errors or missed obligations:

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[55] https://www.aboutamazon.com/news/retail/amazon-rufus-ai-assistant-personalized-shopping-features

AI use case	**Description and real-world example**
Family scheduling and external commitments coordination[56]	Priya (38, primary household manager) relies on an AI family assistant to manage the constant flow of school and childcare commitments. The AI monitors school communications and activity notices; when Priya forwards her daughter's field-trip email, it automatically extracts the date, time, and requirements, creates a shared calendar entry, and adds contextual reminders—such as packing a lunch or signing a permission slip. When soccer practice is rescheduled, the AI updates the calendar and notifies both parents. Beyond school events, the AI also helps coordinate logistics. It schedules parent-teacher conferences and routine school appointments, manages recurring childcare bookings, and coordinates with babysitters, schedules ride services for drop off and pick up—confirming availability and sending reminders to everyone involved. Instead of manually tracking emails, calendars, and messages across multiple people, Priya relies on the AI to keep the household aligned and confirm nothing falls through the cracks.
Wellness planning[57]	Nina (24, emerging household manager) uses a fitness tracker to monitor her activity and sleep, but on its own the data feels fragmented and hard to act on. She uses an AI wellness assistant that analyzes her tracker data alongside her calendar and recent activity history to understand patterns in energy, recovery, and consistency. Instead of simply reporting metrics, the AI surfaces insights in plain language. For example, noticing that Nina's sleep quality drops after late workdays, or that intense workouts following short sleep lead to skipped sessions later in the week. Based on these patterns, the AI proactively adjusts her weekly plan, recommending lighter activity on low-recovery days and suggesting short, realistic alternatives when her schedule is tight. When Nina's routine starts to slip, the AI flags early signs of fatigue and helps her reset goals before she disengages entirely. Over time, it learns which adjustments help her stay consistent and which do not, refining guidance accordingly. Rather than tracking performance in isolation, the AI turns raw data into anticipatory, personalized guidance that helps Nina maintain healthier routines within the constraints of her daily life.
Financial and benefits administration and compliance[58] [59] [60]	Karen (48, primary household manager) spends significant time planning monthly finances, tracking bills, interpreting insurance coverage, and completing paperwork. Between utility payments, insurance claims, benefits enrollment deadlines, and occasional disputes or appeals, keeping everything compliant and up to date is a constant source of stress. Karen uses an AI assistant that helps with budget planning, monitors upcoming dues, explains insurance and benefits coverage in plain language, and handles required paperwork. When a claim is denied or a form is due, the AI helps Karen interpret the denial reasons and suggests how to prepare necessary documentation. It helps Karen tracks follow-ups, and flags deadlines.Instead of juggling multiple portals, paperwork, and customer service calls, Karen relies on the AI to manage household financial and benefits administration reducing errors, missed deadlines, and mental load.

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[56] https://mashable.com/article/family-organizer-app-review

[57] https://blog.google/products-and-platforms/devices/fitbit/fitbit-ai-personal-health-coach-preview/#:~:text=Find%20the%20personal%20health%20coach,and%20of%20course%2C%20dark%20mode

[58] https://www.experian.com/blogs/ask-ex

[59] https://medium.com/@luxestriveai/even-i-work-in-ai-and-i-couldnt-explain-my-mom-s-medical-bill-cd35b0019822

[60] https://mumsoncloudnine.co.uk/ai-for-budgeting-family-finances/

5.2.6 Social coordination

The cognitive and emotional work involved in maintaining relationships and managing social obligations within and beyond the household. This includes coordinating family communication, organizing gatherings, negotiating commitments, mediating conflicts, and sustaining support networks. This labor is often invisible, disproportionately carried by one individual, and central to household stability and wellbeing. AI can support this domain by acting as a neutral social coordinator or facilitator, reducing emotional burden while preserving human connection:

AI use case	Description and real-world example
Social planning and group coordination[61]	Wei (58, primary household manager) coordinates Lunar New Year celebrations across extended family. An AI assistant gathers availability, dietary preferences, and traditions, proposes plans, and manages follow-ups neutrally. The AI polls family members on availability and preferences, proposes dates and locations that balance responses, and handles follow-ups and compromises ("Most people are free Saturday evening—does that work if we start at 5?"). It updates the group once decisions are made and sends reminders as the event approaches. Instead of personally chasing responses, mediating preferences, and worrying about disappointing someone, Wei relies on the AI to manage the back-and-forth neutrally.
Conflict mediation and emotional regulation[62]	Neha (24, emerging household manager) often finds herself mediating tense conversations between family members—whether between siblings, partners, or across generations. These moments require emotional awareness, careful wording, and constant effort to prevent disagreements from escalating. With everyone's consent, Neha uses an AI conflict-support assistant during difficult conversations. The AI listens for rising tension and, in real time, suggests de-escalation techniques—such as encouraging turn-taking, offering neutral rephrasing of heated remarks, or privately nudging one person to acknowledge the other's perspective before responding. Instead of acting as the family's informal counselor, Neha relies on the AI to support calmer, more constructive communication. As she puts it, "It helps us pause before things spiral."

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[61] https://declom.com/milo

[62] https://zenora.app/what-ai-powered-conflict-resolution-techniques-strengthen-family-dynamics/

5.3 Personas specific to caregivers

Five caregiver personas are defined that together cover US parent and caregiver roles and allow household activities to be valued consistently across childcare, elder care, chores, shopping, administration, and social coordination. Each persona corresponds to a different caregiving configuration e.g. households primarily supporting children, households focused on elder care, households managing both simultaneously, and households in which caregiving responsibility falls entirely on a single caregiver.

Throughout the analysis, certain factors such as income level, employment intensity, disability status, and rural versus urban location are treated as cross-cutting modifiers rather than standalone personas. These characteristics meaningfully shape the burden and value of caregiving work, but they do not change the underlying caregiving role a household plays. Treating them as modifiers preserves analytical clarity while allowing for nuanced valuation within each persona.

These personas provide a stable foundation for quantifying unpaid household activities, comparing caregiving burdens across household types, and assessing where AI-enabled support can deliver the greatest economic and wellbeing impact. The personas form the backbone of the quantitative impact model by translating specific use cases into aggregated socio-economic value.

Persona ID	Persona	Definition[63] [64]
P1	Two-adult childcare household	• Two adults are the primary caregivers • One or more children under 18 • No dependent older adults
P2	Two-adult elder-care household	• Two adults are the primary caregivers • One or more elderly • No dependent children
P3	Two-adult sandwich household	• Two adults are the primary caregivers • Children under 18 • One or more elderly
P4	Solo caregiver household	• Exactly 1 adult who is the primary caregiver • One or more dependent children and/or elders present
P5	Non-caregiver household	• One or two adults • No dependent children or elders

5.4 Qualitative value of AI assistive support in household life

To assess the qualitative impact of AI use cases in a way that is rigorous, comparable, and defensible, the use cases are ranked using directional scales grounded in established academic research. Rather than treating these outcomes as binary or subjective, the framework draws on cognitive psychology, human-factors engineering, public health, and wellbeing economics to define structured 1–4 rankings that reflect the degree to which a use case is likely to reduce mental burden or improve real-world outcomes. These rankings are intentionally directional rather than precise estimates, i.e. they are designed to show relative impact strength (e.g. incremental vs. high vs. structural), not to imply exact percentages. The same frameworks can be applied consistently across individual use cases and caregiver personas, allowing qualitative impacts to be compared, combined, and interpreted alongside quantitative value estimates without overstating certainty.

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[63] https://usa.ipums.org/usa/sda/

[64] https://data.census.gov/table/ACSDP1Y2024.DP02

5.4.1 Cognitive and psychological load reduction[65]

Cognitive load is broken down into steps in the cognitive process, i.e. from information acquisition, to decision selection, to action implementation, and finally end-to-end monitoring and management, with each increasing in the level of cognitive load for an individual. To determine where AI may have the largest impact through cognitive load reduction the analysis first evaluates where within the cognitive process the use case may be applied. The further down the process (e.g. closed loop management) the greater the potential of load reduction. However, human-factors research suggests that not all use cases are created equal across the cognitive process. Specifically, a diagnostic test is used to adjust the weighting of the load reduction based on three human-factor dimensions—(1) direct attentional[66] tax, (2) indirect attentional tax,[67] and (3) failure cost.[68]

Dimension	Diagnostic test (Y/N)
Direct attentional tax	Does this function require ongoing cognitive engagement over days/weeks/months?
Indirect attentional tax	Does this function consume attention even when no action is taken (i.e. ‘keeping it in mind’)?
Failure cost	If this function is missed or done poorly, are the consequences meaningful (health, money, safety, relationships)?

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[65] https://www.cs.uml.edu/~holly/91.550/papers/sheridan-autonomy.pdf, https://andymatuschak.org/files/papers/Sweller%20-%201988%20-%20Cognitive%20load%20during%20problem%20solving.pdf, https://faculty.washington.edu/jdb/345/345%20Articles/Baumeister%20et%20al.%20%281998%29.pdf, https://www.all-about-psychology.com/stress-cognitive-load-decision-making.html

[66] https://research-collective.com/working-memory-and-attentional-resources-in-human-factors/

[67] https://boa.unimib.it/retrieve/611385f6-a70b-4de8-be9e-0b92c8b6af00/Hirsch%20et%20al-2024-Memory%20%26amp%3b%20Cognition-VoR.pdf

[68] https://www.resilience-engineering-association.org/download/resources/symposium/symposium-2006%282%29/Blanford_et_al.pdf

Rather than assuming a fixed hierarchy (e.g. monitoring is always the step with the most cognitive load), the dimension that explains the importance of a use case is treated as the primary driver of cognitive load. This approach confirms that weighting reflects the true nature of the task rather than its position in the cognitive process.

Cognitive steps	Direct attentional tax	Indirect attentional tax	Failure cost
Information acquisition and analysis	◔ Once read/summarized, it exits working memory	◔ No idle cost once information is externalized	◓ Misunderstandings lead to later mistakes
Decision/action selection	◓ Decisions recur, but are event-triggered, not continuous	◓ Some rumination, but limited when not actively choosing	◕ Bad decisions have direct consequences
Action implementation	◕ Execution creates unfinished business (open loops) that persist until completed	◕ Unfinished activities create mental reminders and distractions	◔ Missed execution can be recovered
Closed-loop management	● Monitoring persists indefinitely until responsibility ends	● Requires continuous vigilance and ‘remembering to remember’	● Failure here would have the highest stakes

5.4.2 Wellbeing outcome level and quality[69]

Rather than treating wellbeing outcomes as a strict ladder, we model wellbeing impact as a weighted composite of four outcome qualities: convenience, reliability, risk reduction, and durable life trajectory gains. Each use case contributes independently along these dimensions, with higher weight placed on outcomes that are more durable and compounding over time. The score of each dimension that the use case achieves is added to arrive at a weighted average score relative to each use case. This allows use cases that meaningfully expand long-term capability or opportunity to score highly even when they do not primarily reduce risk, while still recognizing the strong wellbeing value of harm prevention and reliability.

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[69] https://unstats.un.org/unsd/statcom/groups/NetEconStat/Meetings/GDPSprint2023FourthMeeting/Exton-OECD-Beyond-GDP-Sprint-7-September-2023.pdf, https://www.oecd.org/social/how-s-life-23089679.html, https://thedocs.worldbank.org/en/doc/1224c1c11e33dc244607d997d71f8030-0050022021/original/3-02-Wellbeing-sustainability-and-distributional-analysis-OECD-and-World-Bank.pdf, https://www.oecd.org/en/topics/measuring-well-being-and-progress.html

Weights	Dimension	Description	Impact on wellbeing
0.25	Convenience/ short-term relief	• Reduced friction, comfort, ease	• Reduces day-to-day friction and momentary stress, improving the immediate lived experience of tasks without materially altering long-term outcomes or capacity
0.50	Reliability improvement	• Outcomes more consistent (fewer misses, steadier routines)	• Creates predictability and routine stability, which reduces cognitive load over time and supports sustained functioning by lowering the frequency of disruptions, errors, and mental ‘catch-up’ costs
0.75	Risk reduction/ prevention	• Avoided harm, errors, escalations	• Prevents avoidable harm and negative shocks that can disproportionately undermine health, learning, financial security, or emotional stability, preserving baseline wellbeing and safeguarding future options
1.00	Durable life-trajectory gains	• Capability, independence, long-term options (e.g. sustained health/function, workforce participation, autonomy/dignity)	• Expands long-term capability, independence, and agency by enabling sustained improvements in health, skills, participation, or autonomy that compound across life stages and contexts

Weighted score range

Weights	Dimension	Sum of weighted score range
◔	Convenience led (0.25)	≤0.25
◓	Reliability led (0.50)	0.5–1.0
◕	Risk reduction/prevention led (0.75)	1.25–1.75
●	Durable wellbeing impact led (1.00)	≥2.0

5.4.3 Mapping use cases to qualitative impact[70]

Child, pet, and dependent care

AI service	Description and real-world example	Dominant step	Cognitive load	Wellbeing score	Wellbeing outcome
Child engagement, learning, and supervision[71]	Ayesha (29, emerging household manager) works evening shifts and relies on staggered childcare support. During gaps, she uses an AI assistant to provide her 8-year-old with consistent homework support through step-by-step explanations, read-aloud instructions, and age-appropriate answers and stories. While Ayesha continues working nearby, the AI helps her child stay engaged and make progress independently, stepping in only when needed. The assistant tracks areas where her child struggles and surfaces concise insights for Ayesha to review later. Rather than replacing parental involvement, the AI enables Ayesha to multitask more effectively, confirming her child receives steady learning support while she meets work responsibilities.	Failure cost	◕	1.25	◕
Infant needs interpretation and response guidance[72] [73]	Daniel (19, emerging household manager) feels overwhelmed trying to interpret his newborn's cries—unsure whether his baby is hungry, tired, or uncomfortable. Daniel uses an AI assistant that analyzes the sound of his baby's cries and suggests likely needs. While not perfect, the guidance helps him respond faster and with more confidence, easing anxiety during stressful moments.	Failure cost	◕	1.00	◓
Child nutrition safety and dietary tracking[74] [75] [76]	Sophie (34, primary household manager) wants to confirm her baby's diet is safe while staying on top of routine care. Tracking ingredients, reactions, and medical schedules quickly becomes overwhelming. Sophie uses an AI assistant that scans baby food labels, logs what her baby eats, and monitors for patterns—such as skin rashes or discomfort following specific foods. When potential reactions emerge, the AI flags them and provides guidance on next steps. The same assistant tracks doctor milestone schedules and proactively schedules pediatric appointments, sending Sophie reminders to confirm. Instead of manually tracking meals, reactions, and medical timelines, Sophie relies on the AI to coordinate nutrition safety and preventive care—allowing her to focus on feeding and bonding.	Indirect attentional tax	●	2.25	●

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[70] Supported by insights from caregiver interviews

[71] https://www.khanmigo.ai/

[72] https://sherwood.news/tech/do-baby-cry-translators-work/

[73] https://www.uclahealth.org/news/article/chatterbaby-an-app-that-helps-parents-know-when-and-why-their-baby-is-crying-used-in-new-research

[74] https://eatsafeai.app/

[75] https://emitrr.com/blog/how-ai-agents-are-transforming-pediatric-practices/

[76] https://www.freetofeed.com/post/meet-vana-your-24-7-ai-assistant-for-navigating-food-reactivity-and-allergies

AI service	Description and real-world example	Dominant step	Cognitive load	Wellbeing score	Wellbeing outcome
Child routine and behavior training	Maya (25, emerging household manager) is a stay-at-home mother of her 3-year-old son, Leo, who is learning everyday routines such as potty training, bedtime transitions, and independent play. Leo's progress varies day to day, requiring Maya to constantly adjust approaches and repeat guidance while managing the household. Maya uses an AI routine support assistant to help structure simple, age-appropriate routines across key moments like meals, bedtime, cleanup, and getting dressed. The AI breaks routines into short, consistent steps, suggests gentle prompting language, and times reminders to Leo's natural patterns rather than fixed schedules. When setbacks occur, the AI offers calm, non-judgmental alternatives and adapts guidance over time based on what works best. By offloading routine planning and reinforcement, the AI reduces Maya's daily decision-making and emotional labor, allowing her to spend more engaged, positive time with her child.	Direct attentional tax	◕	1.50	◕
Accessibility support and adaptive engagement[77]	Alex (42, primary household manager) supports his teenage daughter, Amy, who has Down syndrome and needs help with attention, memory, and daily routines. Everyday tasks like getting ready, preparing snacks, and transitioning between activities require repeated prompting and supervision. Alex uses an AI accessibility assistant that creates simple visual daily schedules, breaks tasks into step-by-step guidance, and delivers calm voice or visual prompts paced to Amy's responses. The AI simplifies instructions, repeats guidance when steps are missed, and prepares her for schedule changes in advance. It tracks which steps need support and shares non-identifiable insights with Alex, reducing repetition while building independence.	Direct attentional tax	●	2.25	●
Pet nutrition and health[78] [79]	Meera (36, emerging household manager) wants to keep her pet healthy, well-behaved, and on a consistent routine, but tracking food safety, reactions, vet schedules, training needs, and daily tasks quickly becomes overwhelming. Meera uses an AI pet care assistant that scans pet food labels, logs what her pet eats, and detects patterns such as skin irritation after certain treats. The same assistant tracks vaccinations and routine vet care, proactively scheduling appointments and sending reminders. Based on observed behaviors and daily routines, the AI also provides tailored training guidance-such as short exercises to reduce barking or improve leash behavior—and adjusts recommendations over time. Beyond health and training, the AI manages daily routines like feeding, walking, and medications, and consolidates updates from pet sitters or walkers. Instead of juggling multiple tools and remembering countless details, Meera relies on the AI to coordinate nutrition, health, training, and routine care—freeing her to focus on quality time with her pet.	Direct attentional tax	●	1.25	◕

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[77] https://ndss.org/sites/default/files/2025-08/NDSS%20AI%20Resource.pdf

[78] https://carepet.ai/

[79] https://www.petallergyscan.com/

Elder care

AI service	Description and real-world example	Dominant step	Cognitive load	Wellbeing score	Wellbeing outcome
Medical note synthesis and care planning[80]	Jennifer (34, primary household manager) was overwhelmed after her father's week of specialist doctor appointments. Each visit produced notes, labs, and follow-up instructions—often overlapping or conflicting—and spread across portals and paperwork. Jennifer used an AI assistant, uploaded non-PII information through pictures and doctor notes to compile the documents into a single, structured summary. The AI highlighted each doctor's recommendations, flagged follow-ups, and surfaced where guidance aligned or differed. What once took hours of manual review was condensed into minutes. Jennifer could now quickly understand the care plan and coordinate next steps and schedule follow ups. AI summarizes, organizes, and supports routines using non-identifiable data and user-provided information; it does not diagnose, treat, or replace professionals.	Failure cost	◔	.25	◕
Elder engagement, companionship, and cognitive stimulation[81]	Mr. Lim (79, care receiving senior), spends long stretches of the day alone, with family members checking in when they can but unable to be present consistently. He is most comfortable speaking in his native language and engaging with familiar cultural references, which can make generic digital tools feel isolating rather than supportive. His family uses an AI companion that supports conversation and light cognitive engagement through voice or tablet interaction, adapting to his preferred language and cultural context. The AI engages Mr. Lim in simple daily conversations, asks about his routines, shares familiar stories or humor, and offers tailored activities such as trivia from his era or gentle memory exercises. Over time, it adapts to his responses and engagement patterns, generating non-identifiable summaries that help family members stay aware of changes between visits.	Direct attentional tax	◔	1.25	◕
Medication management and monitoring [82] [83]	Linda (67, care receiving senior) who lives independently is managing multiple prescriptions and wants to maintain her independence, but sometimes forgets medications or misses steps in daily routines like bathing—creating anxiety for both her and her son. Linda uses an AI assistant that provides gentle, step-by-step guidance during daily activities such as bathing, along with timely medication reminders. The AI asks for confirmation when medications are taken, offers safety prompts during routines, and alerts her son if doses or steps are missed. Instead of requiring frequent check-ins or direct supervision, the AI supports safe, independent daily living while giving her family confidence that critical routines are being followed.	Indirect attentional tax	●	2.25	●

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[80] https://www.aarp.org/caregiving/basics/how-ai-can-help-caregivers/

[81] https://elliq.com/?srsltid=AfmBOorN9AbHZq4YmtfwX8zyRZG-XSK0GGRk1XXPLn5EbzYn52Mfehv6

[82] https://onscreeninc.com/blogs/news/new-feature-tasks-and-routines?srsltid=AfmBOoqebOh2HoXbn1OIybhuxR3I8z3JkIjoDYdn0ZCv-6ATqRyR7r-7

[83] https://www.foxnews.com/health/ai-app-helps-aging-adults-manage-prescriptions-photo-personal-health-assistant

AI service	Description and real-world example	Dominant step	Cognitive load	Wellbeing score	Wellbeing outcome
Health triage and care navigation[84][85]	Ravi (45, primary household manager) felt overwhelmed when his father showed signs of a stroke. Unsure what to do first, Ravi turned to an AI health navigator for guidance. The AI walked him through immediate next steps, helped him understand what information to gather, and later assisted with organizing follow-up care. In non-emergency situations, Ravi also uses the AI as a first stop for health questions without sharing any PII/ PHI - describing symptoms, sharing photos, and receiving guidance on whether to manage at home or seek medical care, along with preparation checklists for doctor visits. Instead of searching multiple sources or calling hotlines, Ravi relies on the AI to consolidate information and guide decisions with clarity.	Failure cost	◕	0.75	◓

Household chores

AI service	Description and real-world example	Dominant step	Cognitive load	Wellbeing score	Wellbeing outcome
Chore coordination and task allocation[86]	Carlos and Maria (both 51, primary household managers) constantly juggle household chores alongside work and kids' schedules. Keeping track of who should do what—and reminding everyone to actually do it—often falls to them. They use an AI chore coordinator that maintains a shared list of recurring tasks and assigns them fairly based on availability and past completion. When their teenager has soccer practice, the AI automatically shifts his chores to another day and sends reminders to the right person. If someone can't complete a task, the AI reassigns it without conflict. Instead of manually tracking chores, negotiating swaps, and repeatedly reminding family members, Carlos and Maria rely on the AI to manage the system neutrally. The household runs more smoothly, and responsibility is shared more equitably.	Direct attentional tax	●	0.75	◓
Meal planning and grocery coordination[87]	John (46, primary household manager) used to rely heavily on takeout because weekly meal planning and grocery lists felt overwhelming. John uses an AI assistant that suggests a weekly meal plan based on his family's preferences. On Sunday, it suggests a dinner menu for the week based on their dietary preferences and what's already in the fridge. For example, seeing chicken and cheese on hand, it proposes a simple enchilada Monday. It compiles a shopping list for missing ingredients and can directly place an order for delivery on Instacart, adjusting when recipes overlap or ingredients are already on hand.	Failure cost	◕	0.75	◓

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[84] https://www.multicare.org/vitals/using-ai-to-quickly-assess-stroke/

[85] https://www.aarp.org/caregiving/basics/how-ai-can-help-caregivers/

[86] https://reclaim.ai/blog

[87] https://www.ohai.ai/

AI service	Description and real-world example	Dominant step	Cognitive load	Wellbeing score	Wellbeing outcome
Asset maintenance and diagnostics[88]	Elena (43, primary household manager) often struggles to keep up with maintaining household assets—appliances, clothing, and vehicles. When something goes wrong, she should interpret unfamiliar signals: a washing machine error code, a stubborn stain, or an unusual noise from the car. Deciding what's urgent and what to do next requires time, research, and technical know-how. Elena uses an AI assistant that acts as a household maintenance and diagnostics manager. She can upload a photo of a stain, record a sound from her car, or share an appliance alert. The AI explains the issue in plain language, assesses urgency, and recommends next steps—ranging from simple adjustments to scheduling professional service. Instead of relying on manuals, online forums, or guesswork, Elena uses the AI to make confident, timely decisions. The assistant reduces the cognitive burden of troubleshooting while helping prevent small issues from becoming costly problems.	Failure cost	◕	0.75	◕

Shopping and errands

AI service	Description and real-world example	Dominant step	Cognitive load	Wellbeing score	Wellbeing outcome
Purchasing and consumption decision support[89]	Renae (36, primary household manager) spends significant time tracking what the household needs, comparing prices, and deciding when and where to buy—often across groceries, school supplies, household goods, and occasional big-ticket items. Renae uses an AI purchasing manager that monitors household consumption, flags upcoming needs, and recommends purchasing options based on price, quality, and past preferences. When it's time to restock supplies or make a larger purchase, the AI compares vendors, highlights tradeoffs, and suggests the best option, escalating only when decisions require her approval. Instead of repeatedly checking inventories, researching products, and making ad-hoc decisions, Renae relies on the AI to manage routine purchasing and support more complex buying choices with clear recommendations.	Failure cost	◕	0.25	◔

[88] https://www.youtube.com/watch?v=LtZtGYmUiO0&t=11s89

[89] https://www.aboutamazon.com/news/retail/amazon-rufus-ai-assistant-personalized-shopping-features

Household management

AI service	Description and real-world example	Dominant step	Cognitive load	Wellbeing score	Wellbeing outcome
Family scheduling and external commitments coordination[90]	Priya (38, primary household manager) relies on an AI family assistant to manage the constant flow of school and childcare commitments. The AI monitors school communications and activity notices; when Priya forwards her daughter's field-trip email, it automatically extracts the date, time, and requirements, creates a shared calendar entry, and adds contextual reminders—such as packing a lunch or signing a permission slip. When soccer practice is rescheduled, the AI updates the calendar and notifies both parents. Beyond school events, the AI also helps coordinate logistics. It schedules parent-teacher conferences and routine school appointments, manages recurring childcare bookings, and coordinates with babysitters, schedules ride services for drop off and pick up—confirming availability and sending reminders to everyone involved. Instead of manually tracking emails, calendars, and messages across multiple people, Priya relies on the AI to keep the household aligned and confirm nothing falls through the cracks.	Direct attentional tax	◕	0.75	◓
Wellness planning[91]	Nina (24, emerging household manager) uses a fitness tracker to monitor her activity and sleep, but on its own the data feels fragmented and hard to act on. She uses an AI wellness assistant that analyzes her tracker data alongside her calendar and recent activity history to understand patterns in energy, recovery, and consistency. Instead of simply reporting metrics, the AI surfaces insights in plain language. For example, noticing that Nina's sleep quality drops after late workdays, or that intense workouts following short sleep lead to skipped sessions later in the week. Based on these patterns, the AI proactively adjusts her weekly plan, recommending lighter activity on low-recovery days and suggesting short, realistic alternatives when her schedule is tight. When Nina's routine starts to slip, the AI flags early signs of fatigue and helps her reset goals before she disengages entirely. Over time, it learns which adjustments help her stay consistent and which do not, refining guidance accordingly. Rather than tracking performance in isolation, the AI turns raw data into anticipatory, personalized guidance that helps Nina maintain healthier routines within the constraints of her daily life.	Failure cost	◕	1.0	◓

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[90] https://mashable.com/article/family-organizer-app-review

[91] https://blog.google/products-and-platforms/devices/fitbit/fitbit-ai-personal-health-coach-preview/#:~:text=Find%2 the%20personal%20health%20coach,and%20of%20course%2C%20dark%20mode

AI service	Description and real-world example	Dominant step	Cognitive load	Wellbeing score	Wellbeing outcome
Financial and benefits administration and compliance[92] [93] [94]	Karen (48, primary household manager) spends significant time planning monthly finances, tracking bills, interpreting insurance coverage, and completing paperwork. Between utility payments, insurance claims, benefits enrollment deadlines, and occasional disputes or appeals, keeping everything compliant and up to date is a constant source of stress. Karen uses an AI assistant that helps with budget planning, monitors upcoming dues, explains insurance and benefits coverage in plain language, and handles required paperwork. When a claim is denied or a form is due, the AI helps Karen interpret the denial reasons and suggests how to prepare necessary documentation. It helps Karen track follow-ups, and flags deadlines. Instead of juggling multiple portals, paperwork, and customer service calls, Karen relies on the AI to manage household financial and benefits administration reducing errors, missed deadlines, and mental load.	Indirect attentional tax	●	2.25	●

Social coordination

AI service	Description and real-world example	Dominant step	Cognitive load	Wellbeing score	Wellbeing outcome
Social planning and group coordination[95]	Wei (58, primary household manager) coordinates Lunar New Year celebrations across extended family. An AI assistant gathers availability, dietary preferences, and traditions, proposes plans, and manages follow-ups neutrally. The AI polls family members on availability and preferences, proposes dates and locations that balance responses, and handles follow-ups and compromises ("Most people are free Saturday evening—does that work if we start at 5?"). It updates the group once decisions are made and sends reminders as the event approaches. Instead of personally chasing responses, mediating preferences, and worrying about disappointing someone, Wei relies on the AI to manage the back-and-forth neutrally.	Direct attentional tax	●	0.75	◓
Conflict mediation and emotional regulation[96]	Neha (24, emerging household manager) often finds herself mediating tense conversations between family members—whether between siblings, partners, or across generations. These moments require emotional awareness, careful wording, and constant effort to prevent disagreements from escalating. With everyone's consent, Neha uses an AI conflict-support assistant during difficult conversations. The AI listens for rising tension and, in real time, suggests de-escalation techniques—such as encouraging turn-taking, offering neutral rephrasing of heated remarks, or privately nudging one person to acknowledge the other's perspective before responding. Instead of acting as the family's informal counselor, Neha relies on the AI to support calmer, more constructive communication. As she puts it, "It helps us pause before things spiral."	Failure cost	◕	1.75	◕

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[92] https://www.experian.com/blogs/ask-experian/how-to-budget-for-a-family/

[93] https://medium.com/@luxestriveai/even-i-work-in-ai-and-i-couldnt-explain-my-mom-s-medical-bill-cd35b0019822

[94] https://mumsoncloudnine.co.uk/ai-for-budgeting-family-finances/

[95] https://declom.com/milo

[96] https://zenora.app/what-ai-powered-conflict-resolution-techniques-strengthen-family-dynamics/

5.5 Quantitative value of AI assistive support in household life

To estimate the quantitative value of AI-enabled support in unpaid household work, the analysis applies a bottom-up quantitative model that translates AI-enabled behavioral shifts into measurable time savings and cost avoidance, and then scales that value across US households. The approach is intentionally conservative. It sizes value based on capabilities that are available today and applies a realization factor to reflect that not all time saved becomes economically productive or monetizable.

The model has two components. First, it estimates quantitative value per-household for each impact-area use case using time saved and cost avoided. Second, it scales those estimates using caregiver personas, adjusting for adoption and cross-cutting demographic modifiers. This structure allows the analysis to show where measured value concentrates (by persona and by use case) and to run scenarios by varying adoption, realization, and targeting assumptions.

5.5.1 Translating AI assistive support into total quantitative value

Step 1: Calculate net quantitative value per AI adopting user

The model starts at the individual level and estimates the annual value created when a person uses AI to reduce unpaid household effort and prevent avoidable costs. This step converts measurable time and cost impacts into a single net value figure. A realization factor is applied to keep the estimate conservative and reflect that not all time saved becomes economically productive:

- **Time saved:** Hours reduced from unpaid tasks and follow-through, valued using wage-based time valuation (professional cost and/or opportunity cost)
- **Cost avoided:** Direct out-of-pocket costs avoided, such as fees, penalties, and reliance on paid substitutes
- **Realization factor:** Adjustment reflecting that only a portion of time saved converts into productive or monetizable outcomes
- **Output:** Net annual quantitative value per AI-adopting user

Step 2: Estimate number of AI adopting users

The model then determines how many people the value applies to by sizing the relevant population and applying adoption assumptions. This step reflects that adoption differs by caregiving context and household constraints. Cross-cutting modifiers help tailor the estimate to where use cases are most applicable:

- **Base persona population:** Size of each caregiver persona in the US
- **Demographic factors:** Cross-cutting modifiers (e.g. income level, rural/urban, employment intensity) that shape applicability and scaling
- **Adoption rate:** Expected AI adoption by persona and use case over the modeled time period[97]
- **Output:** Number of AI adopting users

Step 3: Scale to total quantitative value

Finally, we scale from the individual to the national level by multiplying per-user value by the number of adopters. This produces an annual estimate of total quantitative value under today's capabilities. The structure also supports scenario testing by varying adoption, realization, or included value components:

- **Calculation:** Net value per AI adopting user × number of AI adopting users
- **Output:** Total annual quantitative value at scale
- **Scenarios:** Adoption rate, realization factor and value components

This provides a scalable estimate of annual quantitative value from today's AI capabilities, with assumptions that can be tested through scenarios (e.g. varying realization, adoption, or excluding specific value components)

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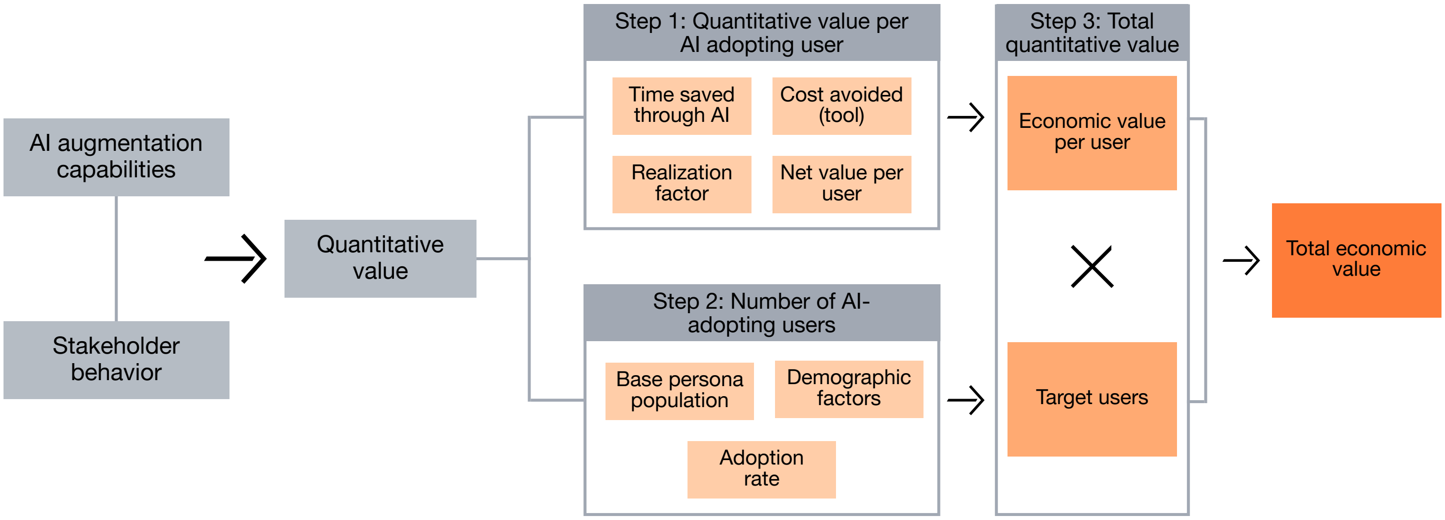
[97] Adoption modeled at 40% based on a five-year outlook as of 2031 (11% today, ~30% annual growth) https://www.pewresearch.org/internet/2025/04/03/artificial-intelligence-in-daily-life-views-and-experiences/ https://www.thebusinessresearchcompany.com/report/artificial-intelligence-ai-in-home-automation-global-market-report

Exhibit 12: Detailed working of the quantitative valuation approach



Economic value per user =	[(Time saved through AI x Economic value/hr) + Cost avoided] x Realization factor
Target users =	(Base persona pop. x Demographic factors) x Adoption rate
Total economic value =	Economic value per user x Target users

The quantitative value estimated in this analysis reflects time savings and cost avoidance at the household level, not a direct addition to Gross Domestic Product (GDP). Time returned to households and costs avoided (such as fees, penalties, or paid substitutes) represent real economic benefits to individuals and families, but they do not translate one-for-one into measured GDP, which captures market-based production and transactions. While these household-level gains can indirectly support GDP growth, by improving productivity, labor-force participation, reliability, and human capital, the relationship is indirect and non-linear, rather than a direct accounting equivalence.

5.5.2 Assumptions for the quantitative valuation

Metric	Base assumption	Source
Average time spent on household work (per adult, per day)	~4 hours/day of unpaid household activity	Bureau of Labor Statistics (ATUS) nationally representative US time-use data
Adoption of AI-enabled household support	~40% (directional)	Pew Research national survey evidence on genAI/tool usage (proxy for potential uptake)
Time saved through automation	~18–42% reduction in time spent on supported activities	Research on time saving potential of automation in household work (study—The future(s) of unpaid work)
Value of time	Average wage rates	BLS data on average wage rates
Realization factor (share of freed time converted to productive means)	27% (see Appendix Section **5.5.3**)	Proxy from empirical study on how clinicians use freed up time (The Health Foundation)
Population and persona scaling	Population and demographic figures	US Census data and Pew Research surveys

5.5.3 Incorporating persona level caregiving intensity into the quantitative approach

While AI may reduce the theoretical time required to complete household and caregiving activities, only a portion of that saved time is ultimately realized in practice as productive time, avoided costs, or other measurable benefits. The realization factor serves two purposes:

- Prevents over-estimating economic value by recognizing that time savings do not automatically convert into monetizable output or clearly observable gains
- Reflects systematic differences across household personas in how likely saved time is to be realized, based on differences in caregiving responsibility and observed availability of discretionary time

At the persona level, realization factors vary to reflect differences in caregiving intensity and time constraint. Personas characterized by lower observed free time and higher concentration of responsibility are assigned higher realization factors, indicating a greater likelihood that saved time will be used and yield measurable benefit. Personas with more discretionary time and lower caregiving burden are assigned lower realization factors, reflecting lower expected realization of marginal time savings.

Note: For aggregate population-level estimates, a single average realization factor is applied rather than summing persona-specific realized values. While realization varies meaningfully across personas, current data limitations do not support reliably estimating and aggregating fully differentiated realization rates across all household segments. Applying a population-level average avoids introducing false precision while preserving directional accuracy in total value estimates.

Persona	**Realization factor**	**Explanation**
Two-adult childcare household	27%	This is treated as the baseline. Caregiving obligations exist, but work can be shared and there is some flexibility. Roughly a quarter of saved time turns into measurable value
Two-adult elder care household	27.8%	Slightly less leisure than average. Even with two adults, elder-care tasks are more time-sensitive and harder to defer than childcare. As a result, saved time is a bit more likely to be used for something necessary rather than absorbed
Two-adult sandwich household	33.5%	Significantly less leisure time than average. These households juggle childcare and elder care at the same time. Overlapping commitments compress schedules, so saved time is much more likely to relieve a real constraint or prevent something from falling through
Solo caregiver household	33.5%	Also, significantly less leisure time than average because there is no way to share or absorb responsibility in this case. Any time saved directly alleviates pressure, so realization is well above the population average
Non-caregiver household	17.5%	These households have more leisure time than average. With few fixed caregiving commitments, saved time is more likely to turn into leisure or idle time rather than economically or functionally valuable activity. This lowers realization below the population average

5.6 Insights from caregiver interviews

Across caregiver interviews conducted, participants described the unpaid household work they manage day to day and how they currently use or would consider using AI to support personal life management. We synthesized these conversations to validate real-world relevance, usability, and adoption potential of the proposed use cases. We report observed behaviors and constraints as they exist today. Taken together, these interviews show where automation is likely to be particularly valuable.

Key takeaways
The strongest value comes from decision support that helps caregivers make better calls in the moment, while hands-off automation so far has limited value because it still requires monitoring and double-checking
Coordination support is a consistent need, and adoption is highest when AI prevents things from falling through by consolidating information and smoothing handoffs across calendars, texts, and informal trackers
In households that lack accessibility, financial or geographic, they want practical help with budgeting, homework, and meal planning, because access to support services is limited and evenings are time-compressed
Health support is used most for triage and plain-language explanation when clinician access is delayed
Currently, AI frequently expands options, such that households seek summarization, prioritization, and clear next steps to reduce cognitive spillover

The table below translates these takeaways into six themes, supported by illustrative excerpts and the implications for AI use-case design, adoption, and caregiver impact:

#	Theme	Excerpts	Implication
1	Decision support	• "General parenting advice is the number one benefit of AI e.g. what should I do about this?" • "Used AI to check if the doctor's suggestions were reasonable"	• Value is higher when AI provides guidance, options, and reasoning while the human monitors and decides
2	Follow-through and coordination reliability	• "Things get lost with the whiteboard my mom uses" • "Shared calendars alone aren't enough" • "I constantly forget to schedule my own appointments" • "I would use the time to focus on my own wellbeing"	• Households lose time and energy because information is spread across calendars, apps, etc. • High-adoption use cases are those where AI consolidates updates, flags what's missing, and prompts next actions before tasks fall through
3	Health triage, not diagnosis	• "I still cross-check with the doctor" • "We'd pay anything to make sure our kids are safe"	• Health support is valued for triage, explanation, and "what to do next," especially when clinician access is delayed • Adoption increases when AI is conservative, escalation based, and clearly positions clinicians as the authority
4	Creativity and low-stakes domains build everyday trust	• "A unique 10-minute story every night, tailored for a four-year-old" • "Before a movie, I ask which scenes aren't appropriate" • "What recipes can I make… cucumbers expire on Tuesday?"	• Low-stakes use cases drive repeat engagement because risk is low and benefit is immediate
5	Summarization and prioritization to prevent overload	• "ChatGPT overloads us with information and provides too many options. I am planning a trip to Italy and some of the recommendations are not relevant"	• Value increases when AI summarizes, prioritizes, and gives clear next steps so the household can decide quickly and move on
6	Higher value where access to support is limited	• "No [tutor] wants to come drive this far away at 6PM" • "Local grocery store takes so much time—it isn't close and I need to get home to help with homework before bed"	• Value is amplified when households face access constraints due to rural location, time, or cost • In these cases AI increases access to resources and reduces caregiver burden by providing practical support like homework help, budgeting guidance with minimal setup cost

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The $330 billion opportunity—How US households stand to benefit from AI assistive support

pwc.com/us/tmt

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