



AGENT EFFICIENCY, PRODUCTIVITY,
AND THE USER INTERFACE

**A Case Study in Address Entry and the
RightNow Integration Framework**

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EXECUTIVE SUMMARY

RightNow understands that the interaction an agent has with their software affects their working attitude. The resulting happiness or frustration **often also affects their engagement with the customer**¹. It is exceedingly difficult to expect agents struggling to overcome their own poor interaction experience to deliver a superior customer experience on behalf of the company.

This white paper was written to provide you with insight into how the extensible RightNow solution can deliver the most effective, efficient, and productive agent interface available in the marketplace. We will attempt to provide a model which will be of benefit to all, however the case study will be of most interest to a larger inbound contact center looking to benefit from reduced call handle times through **efficiency improvements**, as well as contact centers looking to improve the customer experience through a focus on **agent satisfaction and productivity**. This paper is geared towards a user experience professional, customer service manager/executive, system architect, or other individual who would like a deeper understanding of these topics.

In this document, a management strategy is first presented to lay the groundwork for a scientific, but practical approach that can be used to improve agent productivity. A case study then demonstrates how this approach, in combination with the RightNow Agent Desktop integration framework, was used to construct two new User Interface (UI) components which **simultaneously improve agent efficiency, the agent experience, and the customer experience**. An analysis is then performed to demonstrate how these components can save a 500 seat contact center close to **\$250,000** a year in hard agent-labor cost savings.

Management Strategy

Agent salaries account for the single largest proportion of the operating budget in most contact centers², and contact center managers have long known that **agent productivity is critical** to having a profitable business. Recently, profitability improvements have been achieved by enabling “service as the new sales” and while this is still a great way to increase the return on investment, it has not eliminated the fundamental importance of quickly resolving callers’ issues.

First contact resolution (FCR) is the single most important Key Performance Index (KPI) that many successful contact centers focus on and measure themselves against. While this KPI is always important, significant cost savings can still be achieved through modification and improvement to the agent user interface (UI), by increasing focus on the agents’ tasks and reducing keystrokes, mouse clicks, and the need to perform lengthy information retrievals or work across multiple systems. These modifications need not negatively impact FCR—in fact, **making improvements to agent efficiency may actually improve your resolution rate**.

Automation and task redesign can be used to eliminate the repetitive and tedious aspects of an agent’s job which not only reduces handle time but increases both agent and customer satisfaction. In this day and age, there is no need for an agent to mindlessly perform repetitive actions when a computer can easily assist; this empowers your frontline employees to focus on the clients’ needs and respond more fluidly to other demands which cannot be automated.

Can concrete cost saving actually be achieved by reducing keystrokes and mouse clicks? The remainder of this paper will focus on first measuring the time an action such as a keystroke or mouse click consumes, and second demonstrating the time (and cost) savings that can be achieved when extraneous actions are eliminated from the UI.

EFFICIENCY AND HUMAN-COMPUTER INTERACTION (HCI) IN THE CONTACT CENTER

Experts in academia have studied the science of how humans interact with technology for more than 40 years. The lessons from this work have been proven in peer-reviewed journals and discussed in great length at countless conferences and in books. Though the field of HCI has been around for a while, **we're just now starting to understand** the implications of this research on everyday contact center operations.

One study of interest, called Project Ernestine³, **examined 72,450 phone calls between agents and customers** over the period of one year. The researchers used task analysis to examine every interaction agents had, then attempted to break down these interactions into the smallest possible atomic actions and measure the time it took to complete each action. This work resulted in a model called GOMS (Goals Operators Methods Selection) which contained reference numbers on the average time measured down to hundredths of seconds that it took for each action to be performed. After the model was built, the researchers found they could predict the time it would take for an agent to work through any given UI while on a call. Suddenly, this allowed the researchers to compare the efficiency of any system which was available to them, and this saved the company (NYNEX, now part of Verizon) two million dollars a year in reduced agent labor costs by selecting the most efficient system.

This study occurred in 1993. You might wonder why few contact centers use GOMS—the best explanation we have is that **this is a closely guarded secret** among successful contact centers and thus “people in the know” are in no hurry to share this information.

APPLYING HCI TO AGENT EFFICIENCY

A keystroke and mouse click version of GOMS is available which contains standard measurements for each interaction that an agent has with the UI. Some basic interactions are listed below in Table 1:

Table 1. Execution Times for Common Actions⁴

0.28 seconds	Keystroke
0.4 seconds	Move hand to keyboard or mouse
1.2 seconds	Perform a visual search
1.3 seconds	Point and click the mouse

As you can see, a mouse click takes an agent about 1.3 seconds to perform. 1.3 seconds might not seem like it matters much, but these individual interactions can quickly add up and compound into significant amounts of time. The next section uses a case study to demonstrate how many individual interactions are actually required to use a given UI, and how task redesign can be used to reduce the number of these interactions to improve agent efficiency.

CASE STUDY: RECORDING A CUSTOMER'S ADDRESS

At RightNow we believe our clients should benefit from the research our HCI group undertakes. To that end, RightNow has identified several key research areas where we believe efficiency and satisfaction benefits can be gained. It's our goal to share a portion of this research and let you decide on the potential application and value in your organization.

One of these research areas involves the examination of manual address data entry and the agent interaction with a standard "address control". The goal of this research was to identify opportunities to drive increased agent efficiency and satisfaction through improved agent UIs. GOMS was employed to analyze and track the atomic actions an agent must complete to input a given address in each of several experimental UI controls. Once the analysis was complete, the results allowed the team to evaluate the experimental address controls and compare them to the efficiency of the out-of-the-box address control available in the RightNow Product as of August 2008. Examination of over ten experimental UIs resulted in two improved controls.

In the next section, we will use a sample task to examine the interaction flow for the standard address control and compare it to the flow of two improved address controls. An interaction flow is the set of all actions (clicks, keystrokes, etc.) that must be performed to complete a task. Granted, there will be some variation in the length of customers' addresses as well as customer locales, which may actually reside outside of the U.S. Given that these factors are out of our control we'll ignore the variation for the purposes of this demonstration.

Note that all of the controls presented do allow the agent to successfully complete the address entry task, but that each control differs in the set of actions an agent must complete to do so.

For our sample task, we will use the mailing address of RightNow Technologies:

Figure 1: Sample Address

136 Enterprise Blvd.

Bozeman, MT 59718

STANDARD ADDRESS CONTROL

The accuracy of data entered is important and the standard address control helps to encourage accurate data entry by breaking the address into individual data fields. For ease of display, the address is shown in a single text box once it has been entered. In order for an agent to edit/add an address, they must expand this single field to show the individual fields for "Street", "City", "Country", "State/Province", and "Postal Code"

Let's examine the interaction flow (Figure 2) for entering in our sample address.

Figure 2: Standard Address Control. Total task time = 17.12 seconds

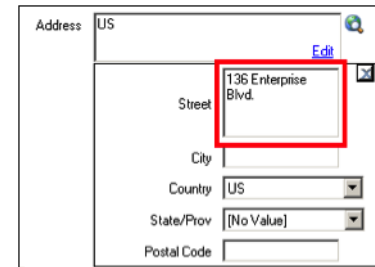
1. Point the mouse to the "Edit" link [+ 1.1 seconds]



2. Click on the link [+ 0.2 seconds]

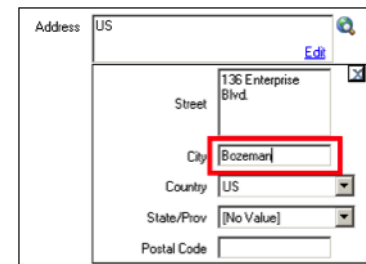
3. Move the mouse hand back to keyboard [+ 0.4 seconds]

4. Type in a street "136 Enterprise Blvd." [+ 5.6 seconds]



5. Press -Tab- to change focus to the city field [+ 0.28 seconds]

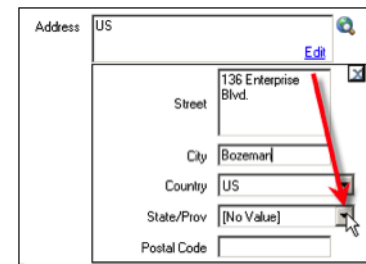
6. Type in the city "Bozeman" [+ 1.96 seconds]



7. Move the mouse hand back to the mouse [+ 0.4 seconds]

8. Point the mouse to the State down [+ 1.1 seconds]

9. Click on the State drop down [+ 0.2 seconds]

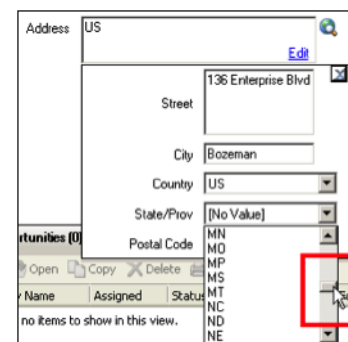


10. Point the mouse to the scroll bar [+ 1.1 seconds]

11. Click and hold on the scroll bar [+ 0.1 seconds]

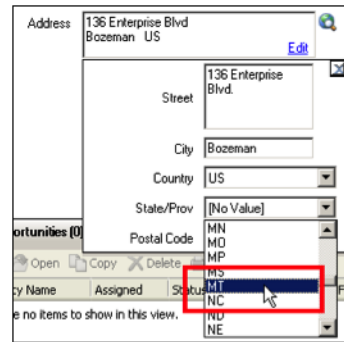
12. Drag the scrollbar so that the correct state shows up [+ 1.1 seconds]

13. Release the button [+ 0.1 seconds]



14. Point the mouse to the correct state “MT” [+ 1.1 seconds]

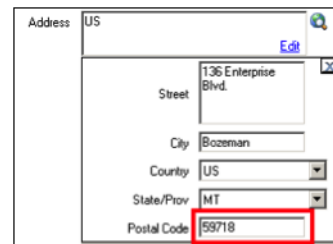
15. Click on “MT” [+ 0.1 seconds]



16. Move mouse hand back to keyboard [+ 0.4 seconds]

17. Press -Tab- [+ 0.28 seconds]

18. Type in the postal code “59718” [+ 1.4 seconds]



19. Press -Enter- [+ 0.28 seconds]



IMPROVED ADDRESS CONTROL #1

Note that it is redundant to require agents to type in “city”, “state”, and “zip”—when the zip code is known, city and state are implied because all zip codes in the U.S. and Canada are unique. Automatically filling in city and state also increases the accuracy of inputted addresses because city and state will always be correctly associated to the right zip code.

Using this fact, the improved address control relies on a web service query to a Google Maps server to return full address data when partial data is entered. This clearly reduces the number of characters an agent must type in, but it also has another nice upside because data entered by the agent is cleansed by Google Map’s robust “Did you mean?” feature, which can be used to automatically correct agent typos and misspellings.

Using dynamic changes to the font and color of the address text, a natural style of interactions is provided to agents—this does not require disruptive dialog boxes or additional menus that require agent clicking. A successfully validated address is simply displayed to the agent using green bolded text and requires no further action.

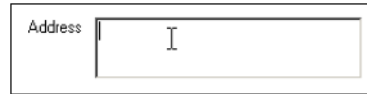
Let's examine the interaction flow for the first improved address control in Figure 3.

Figure 3: Improved Address Control #1. Total task time = 10.86 seconds

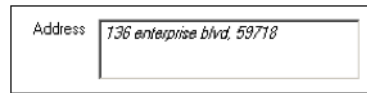
1. Move mouse to field [+ 1.1 seconds]



2. Click inside the field [+ 0.2 seconds]



3. Type in the Street and Zip code "136 enterprise blvd, 59718" [+ 7.28 seconds]



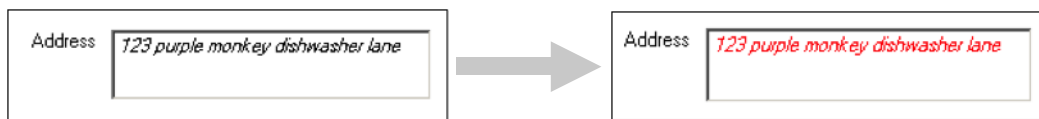
4. Press -Enter- [+ 0.28 seconds]



5. Wait for server to validate results [+ ~2 seconds]

In the interest of efficiency, the suggested "Did you mean" address is always accepted by default. If no valid address is available for suggestion, the text of the address changes to red to communicate the error status to the agent who can then correct the situation while customer is still live (Figure 3b).

Figure 3b: Invalid Address



Using the first improved address control a 36.6% reduction in task time is achieved compared to the standard control and this amounts to over six seconds of agent time saved each time the address control is used. This might not seem like a lot of time—next time you are in a conversation try stopping in the middle of it. Six seconds turns out to be a fairly awkward pause in human conversation.

IMPROVED ADDRESS CONTROL #2

Thinking outside of the box a bit, our HCI team pondered if there was any way to further increase the efficiency of the already improved address control. While agent interactions had been significantly reduced, it seemed the only way to further reduce the agent actions would be to automate the control.

It is currently possible to use computer telephony integration (CTI) to automatically “pop” a contact record in the RightNow desktop based on caller id (ANI), which in turn contains the customer’s address. While this automation is time saving in itself, it doesn’t really solve the problem of an agent who needs to enter in a customer’s new address or needs to create a new contact record for a first-time caller. In order to handle this, RightNow has partnered with TARGUSinfo to resolve address information from known landline, VoIP, and cell phone numbers in the U.S. and Canada. Using this system, it is possible to automatically populate the name and address field(s) for a new caller without any input from the agent.

Figure 4 shows the behind the scenes “flow” for the second improved address control.

Figure 4: Improved Address Control #2. Total task time = 0 seconds

1. Before the call is delivered to the agent, the caller’s phone number is retrieved from caller id.
2. The number is queried against the TARGUSinfo data repository.
3. When the agent answers the phone, the contact and address is already populated on the screen. No agent time is used.



Using this address control a 100% reduction in task time is achieved compared to the standard control. Note that it does still take some “time” to populate the address however no agent time is used as this task can be completed by automation before the call is delivered to the agent.

The ROI for automation in the contact center is beyond clear—one study found that the use of CTI automation to perform caller authentication was found to have potential savings of \$11.7 billion dollars a year for the contact center industry².

STANDARD VS. IMPROVED ADDRESS CONTROLS

In a busy contact center it's easy to overlook how many extraneous actions may actually be required to simply input the address of a customer. Once time is taken to dive down into the interaction flow an agent must go through to use the control, the sheer number of actions becomes apparent. Aside from the time savings that occur by reducing unnecessary actions there are also other tangible benefits that can be achieved with the improved address controls.

- 1. It is possible to nearly eliminate undeliverable mailings and packages.** This saves not only on postage and handling costs but also prevents customers from having to wait unnecessarily for undeliverable packages to be resent.
- 2. Market segmentation and demographic data can be more accurately computed.** When attempting to map a database of existing customer addresses against published segmentation data (which also contains addresses) many mismatches and unmatchable addresses often result due to poor data hygiene in the contact center. Using a data service to validate the addresses as they are recorded ensures that all addresses can be properly mapped.
- 3. Efficiency of downstream business operations is improved.** Often an address is initially captured by an agent and then reused again in other aspects of the business. One example of this is a site visit by a company representative (perhaps a service or installation trip) – if the customer address is not valid the representative may spend unnecessary time trying to locate the proper residence, or might not be able to locate the residence at all.
- 4. An invalid address causes increased task time and causes poor customer service.** An address in need of correction requires an agent to handle another interaction with the customer to correct the address.
- 5. Excessive reliance on the mouse can increase rates of Repetitive Stress Injury (RSI)⁵.** Carpal tunnel syndrome is often the largest workers' compensation claim in computer-based work environments. By reducing unnecessary and repetitive actions this may reduce the risk of hand and wrist injury.
- 6. Agents no longer speak “banter” while trying to fill gaps in the interaction.** While working through a slow task, agents will often carry on a side conversation in parallel in order to sound competent⁵; this is known as hearable competency.

Agent: “Just a moment while I enter this data. How is the weather there in Montana?”

Customer: “It's fine. Do you know what the solution to my problem is yet?”

Agent: “Sorry, just another moment please...”

Thus, the benefits of an improved agent interface are not only that it increases the efficiency and therefore productivity of the agent (which it does), but also that it results in a smoother and more error tolerant agent experience and ultimately this enables agents and the business as a whole to deliver a superior customer experience.

Looking at only the cost savings associated with reduced agent labor costs, a sample of the cost savings which can be achieved from the improved address controls is shown below in Figure 5.

Figure 5: Annual Cost Savings for the Improved Address Controls⁶

	per seat	50 seats	100 seats	500 seats	1,000 seats
1st Improved address control (Google Maps)	\$176	\$8,819	\$17,637	\$88,186	\$176,373
2nd Improved address control (TARGUSinfo)	\$499	\$24,960	\$49,920	\$249,599	\$499,199

RIGHTNOW CONNECT INTEGRATION

The ability to experiment with and improve the standard address control was made possible by the RightNow Connect framework. This framework is open to RightNow partners and clients. Agents are often asked to use multiple systems and a single unified desktop application can make large improvement to their ability to deliver a good customer experience while maintaining efficiency. Proper data and application integration go hand-in-hand with agent productivity; the goal of these integrations should always be to improve the customer experience through an improved agent experience and access to valuable data at every point in the interaction.

CONCLUSION

We have demonstrated how improving even a small portion of the agent user interface can reduce handle time in the contact center and have a direct effect on operating efficiency and agent productivity. We have also demonstrated that improved user interfaces often have benefits that go beyond the time savings and can improve data hygiene, are tolerant to user error, may reduce repetitive stress injury, and ultimately empower the organization to deliver a superior customer experience. Established scientific principles that are relevant to the everyday contact center do exist, and these principles can be applied to real-world pain points.

Contact center efficiency has been discussed in considerable length in various white papers, books, and seminars. It is our experience that most, if not all, of these efforts focus on high level management strategy, while devoting little attention to life in the trenches at a contact center and how improvements made at the bottom of the organization can flow back into overall operating performance. Strategy will always remain important—even critical—but without proper tactical execution no strategy can be successful. RightNow understands the value of both strategy and execution, and we'll do our best to help you achieve both aspects in your contact center.

ABOUT THE AUTHORS

Ben Werner and Shon Wedde work together to improve agent efficiency in the contact centers by using a design thinking approach to invent creative solutions to typical contact center challenges.

Ben Werner, Usability Engineer, is a board-certified Associate Human Factors Professional and studied Human-Computer Interaction at the University of Minnesota, where he received his Master's degree. He also holds bachelor degrees in Computer Science and Psychology from the University of St. Thomas. If you have comments about this paper, please contact Ben at ben.werner@rightnow.com.

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ABOUT RIGHTNOW

RightNow (NASDAQ: RNOW) delivers the high-impact technology solutions and services organizations need to cost-efficiently deliver a consistently superior customer experience across their frontline service, sales, and marketing touchpoints. Approximately 1,900 corporations and government agencies worldwide depend on RightNow to achieve their strategic objectives and better meet the needs of those they serve. RightNow is headquartered in Bozeman, Montana.

For more information, please visit www.rightnow.com.

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ABOUT TARGUSINFO

TARGUSinfo delivers precise and actionable consumer insights from the moment the phone rings to enable call centers to acquire, retain, and grow high-value customers.

With its cutting-edge analytics platform and unmatched accuracy and coverage of consumer data, TARGUSinfo enables call centers to identify the most valuable callers, fuel skills-based routing, optimize messaging and offers, prioritize and score leads in real time, remarket to lost prospects, and provide a better customer experience.

The result is a greater return on investment—measured by increased order values, shorter call times, reduced costs, improved efficiencies, and increased conversion rates. For more information, please contact TARGUSinfo at 1.800.6.TARGUS (800.682.7487) or visit www.TARGUSinfo.com

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